AFGL-TR-80-0261

AIR FORCE SURVEYS IN GEOPHYSICS, NO. 430



W:

10

96

AD

Cirrus Particle Distribution Study, Part 6

IAN D. COHEN, Capt, USAF ARNOLD A. BARNES, JR.



4 SEPTEMBER 1980

Approved for public release; distribution unlimited.

METEOROLOGY DIVISION PROJECT 317J AIR FORCE GEOPHYSICS LABORATORY

HANSCOM AFB. MASSACHUSETTS 01731

AIR FORCE SYSTEMS COMMAND, USAF



This report has been reviewed by the ESD Information Office (OI) and is releasable to the National Technical Information Service (NTIS).

This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER

Chief Scientist

Qualified requestors may obtain additional copies from the Defense Technical Information Center. All others should apply to the National Technical Information Service.

(9) Air Force surveys in geophysics

Unclassified

Г			~		
- 1	REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM			
ŀ	2. GOVT ACCESSION NO		1		
Å	FGL-TR-80-02" $A N - A / 9$	16 771 i	İ		
ħ	YITLE (and burrille,	5 TYPE OF REPORT & PERIOD COVERED	1		
+	CIRRUS PARTICLE DISTRIBUTION STUDY.		i		
ŀ	PART 6	Scientific. Interim.			
1		6 PERFORMING ORG. REPORT NUMBER	1		
4	AUTHOR(s)	AFSG No. 430 B CONTRACT OR GRANT NUMBER(*)	4		
+	Ian D. Cohen Capt, USAF	o contract on order number(s)	1		
/	Arnold A. Barnes, Jr	İ	1		
ı					
1	PERFORMING ORGANIZATION NAME AND ADDRESS	10 PROGRAM ELEMENT PROJECT, TASK AREA & WORK UNIT NUMBERS	1		
ı	Air Force Geophysics Laboratory (LYC)	36305F			
1	Hanscom AFB Massachusetts 01731	317J0901 (7) 09 /			
Į.	WidsSachusetts 01731	12 REPORT-DATE	1		
1	AirForce Geophysics Laboratory (LYC)	4 September 1986	l		
I	Hanscom AFB	13 NUMBER OF PAGES	4. 12		
	Massachusetts 01731	$106 \qquad (12) \mathcal{I}$	105,		
T	14 MONITORING AGENCY NAME & ADDRESS(II different from Controlling Office)	15 SECURITY CLASS (of this report)	 		
ľ	14)AFGL-TR-80-02673	Unclassified			
1		15. DECLASSIFICATION DOWNGRADING SCHEDULE	1		
ı	AFGL-AFSG-430	SCHEDULE]		
t	16. DISTRIBUTION STATEMENT (of this Report)	······································	1		
	16. Old Ribbillon STATEMENT (of mile Report)				
ı			4		
	Approved for public release, distribution unlimite	d	1		
	Approved for public release; distribution unlimite	d.	iŤ		
	Approved for public release; distribution unlimite	d.	it		
			it		
	Approved for public release; distribution unlimite		Ť		
			ίŤ		
			iŤ		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different fo		iŤ		
			ίŤ		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different fo		j j		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different fo		<i>;</i> †		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different fo		<i>;</i> †		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, If different for 18. SUPPLEMENTARY NOTES	om Renatt)	<i>†</i>		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different in 18. Supplementary notes 18. Supplementary notes 19. KEY WORDS (Continue on reverse side if necessary and identify by block number Cirrostratus Sub-visible cirrus	om Renart)	<i>†</i>		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different in 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side of necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions	om Renart)	i i		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different for 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side of necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions Cloud physics	om Renart)	i t		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different for 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side if necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions Cloud physics Tenuous clouds	om Renart)	i i		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different for 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side if necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions Cloud physics Tenuous clouds Cirrus	om Renort)	i i		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different for 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side if necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions Cloud physics Tenuous clouds Cirrus 10. ABSTRACT (Continue on reverse side if necessary and identify by block number)	om Renort)	i i		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, If different for 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side if necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions Cloud physics Tenuous clouds Cirrus 10. ABSTRACT (Continue on reverse side if necessary and identify by block number) Cirriform clouds associated with a frontal sy New Mexico on 4 and 5 April 1978 were sampled by	stem which passed .hrough	, †		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, If different for 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side if necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions Cloud physics Tenuous clouds Cirrus 10. ABSTRACT (Continue on reverse side if necessary and identify by block number) Cirriform clouds associated with a frontal sy New Mexico on 4 and 5 April 1978 were sampled be equipped with cloud physics instrumentation by AI	stem which passed .hrough by a MC-130E which has been	, †		
1	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, If different for the abstract entered in Block 20, If different for the abstract entered in Block 20, If different for the abstract in the abstract in the abstract in the abstract in the abstract in the abstract in the abstract in the abstract (Continue on reverse side if necessary and identify by block number). The abstract (Continue on reverse side if necessary and identify by block number). The abstract (Continue on reverse side if necessary and identify by block number). The abstract (Continue on reverse side if necessary and identify by block number). The abstract (Continue on reverse side if necessary and identify by block number). The abstract in abstract in abstract in advance in a different for abstract and identify by block number in a different for abstract in advance in a different for abstract in advance in a different for abstract in a different for abstract in a different for abstract in a different for abstract in a different for a different f	stem which passed .hrough by a MC-130E which has been GL. The clouds sampled ce of the front on 4 April and	, †		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, If different for the abstract entered in Block 20, If different for the abstract entered in Block 20, If different for the abstract (Continue on reverse side if necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions Cloud physics Tenuous clouds Cirrus 10. ABSTRACT (Continue on reverse side if necessary and identify by block number) Cirriform clouds associated with a frontal sy New Mexico on 4 and 5 April 1978 were sampled the equipped with cloud physics instrumentation by AI were thin cirrus and cirrostratus layers in advance behind the same front on 5 April. Particle sizes	stem which passed .hrough by a MC-130E which has been GL. The clouds sampled ce of the front on 4 April and were small; maximum sizes	, †		
	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different for 18. SUPPLEMENTARY NOTES 19. KEY WORDS (Continue on reverse side if necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions Cloud physics Tenuous clouds Cirrus 10. ABSTRACT (Continue on reverse side if necessary and identify by block number) Cirriform clouds associated with a frontal sy New Mexico on 4 and 5 April 1978 were sampled the equipped with cloud physics instrumentation by AI were thin cirrus and cirrostratus layers in advance behind the same front on 5 April. Particle sizes on 4 April were approximately 700 \(\mu \text{m} \text{. Title is izes} \)	stem which passed .hrough by a MC-130E which has been FGL. The clouds sampled be of the front on 4 April and were small; maximum sizes ril, few clouds could be	, †		
2	17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, If different for the abstract entered in Block 20, If different for the abstract entered in Block 20, If different for the abstract (Continue on reverse side if necessary and identify by block number Cirrostratus Sub-visible cirrus Particle distributions Cloud physics Tenuous clouds Cirrus 10. ABSTRACT (Continue on reverse side if necessary and identify by block number) Cirriform clouds associated with a frontal sy New Mexico on 4 and 5 April 1978 were sampled the equipped with cloud physics instrumentation by AI were thin cirrus and cirrostratus layers in advance behind the same front on 5 April. Particle sizes	stem which passed .hrough by a MC-130E which has been FGL. The clouds sampled be of the front on 4 April and were small; maximum sizes ril, few clouds could be 1300 \(\mu\)m. Particle distribu-	<i>i</i> †		

Unclassified
SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

20. (Cont)

one 5-min period from the 5 April flight. Additionally, consecutive 30-sec average distributions are presented for selected time periods from each of the flights. In addition to the visible cirrus clouds, particles were also found in clear air between the cirrus clouds. Some of the sub-visible cirrus particles seemed to come from clouds above the aircraft, but other instances of sub-visible cirrus occurred when there were no visible cirrus above the aircraft suggesting that the particles had developed in-situ.

A

Unclassified

on the contraction of the contra

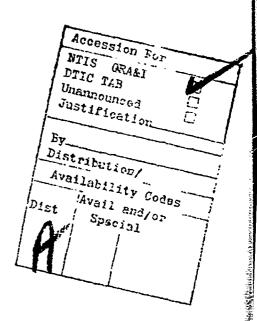
SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

Preface

n near committee and a second contract of the

This report examines data obtained on two flights made by MC-130E S/N 640571. The authors appreciate the support of the aircrew and maintenance personnel of the 4950th Test Wing, Wright-Patterson AFB, Ohio. The diligent work of the work crew, headed by Capt Douglas Brooks and including MSgt James Bush, TSgt Marshall Wright, and SSgt Dennis LaGross, provided the necessary data and descriptions used in this report. Special thanks go to Lt Col Donald Varley for his helpful suggestions which aided in the writing of the report. The assistance of Ms. Barbara Main in preparing the illustrations, of Mrs. Pat Sheehy in typing the manuscript, and of James Lally of Digital Programming Services, Inc. (DPSI) in providing the computer printouts used in this report is greatly appreciated.

A CONTRACTOR OF THE PROPERTY O



Contents INTRODUCTION 7 SYNOPTIC SITUATION 9 THE FLIGHT 16 DISCUSSION OF DATA 19 SUB-VISIBLE CIRRUS 27 CONCLUDING REMARKS 31 REFERENCES 33 APPENDIX A: Transcript of Mission Director's Comments From the Flights of 4 and 5 April 1978 35 APPENDIX B: Selected 5-min Average Particle Distributions From the Flights of 4 and 5 April 1978 39 APPENDIX C: Selected 30-sec Average Particle Distributions From the Flight of 4 April 1978 43 APPENDIX D: Selected 50 sec Average Particle Distributions From the Flight of 5 April 1978 85 105 APPENDIX E: List of Abbreviations

Illustrations

10

1.	Sampling Areas of the Flights of 4 and 5 April 1978	8
2.	Surface Analysis 1800Z of 4 April 1978	11
3.	Surface Analysis 0900Z of 5 April 1978	11
4.	Surface Analysis 1800Z of 5 April 1978	11
5.	GOES Visible Satellite Photo 1830Z 5 April 1978	12
6.	GOES Infrared Satellite Photo 1800Z 5 April 1978	12
7.	500 Millibar Analysis 1200Z 4 April 1978	13
8.	500 Millibar Analysis 0000Z 5 April 1978	13
9.	500 Millibar Analysis 0000Z 6 April 1978	13
10.	300 Millibar Analysis 1200Z 4 April 1978	14
11.	300 Millibar Analysis 0000Z 6 April 1978	14
12.	Winslow Sounding 1200Z 4 April 1978	15
13.	Albuquerque Sounding 1200Z 4 April 1978	15
14.	Winslow Sounding 1200Z 5 April 1978	15
15.	Albuquerque Sounding 1200Z 5 April 1978	15
16.	Clouds at 29,000 ft at 1800Z on 4 April 1978	17
17.	Clouds at 1828Z on 4 April 1978	17
18.	Clouds at 1837Z on 4 April 1978	17
19.	Cirrus Clouds at 1752Z on 5 April 1978	18
20.	Cirrus Clouds at 1743Z on 5 April 1978	18
21.	Altitude, Temperature, Ice Water Content, Medium Volume Diameter, and Particle Density for the Flight of 4 April 1978	21
22.	Particle Size Distribution 1822Z to 1827Z 4 Apr:1 1978	22
23.	Cirrus Clouds During the First Sampling Period on 4 April	23
24.	Cirrus Clouds During the Second Sampling Period on 4 April	23
25.	Particle Size Distribution 1836Z to 1841Z 4 April 1978	24
26.	Particle Size Distribution 1856Z to 1901Z 4 April 1978	25
27.	Particle Size Distribution 1836Z to 1841Z 5 April 1978	26
28.	IWC and Cloud Cover vs Time for Flight of 4 April 1978	28
29.	IWC and Cloud Cover vs Time for Flight of 5 April 1978	28
30.	Particle Size Distribution 1842Z to 1844Z 5 April 1978	30
		Table
1.	Representative Surface Weather Observations 4 April 1978	10

2. Representative Surface Weather Observations 5 April 1978

Cirrus Particle Distribution Study, Part 6

1. INTRODUCTION

This is the sixth in a series of reports on studies of cirriform clouds performed by AFGL for the Air Force Weapons Laboratory's Advanced Radiation Technology (ART) program. These reports discuss cloud microphysical data acquired by the MC-130 aircraft, tail number 640571, maintained and flown by crews of the 4950th Test Wing at Wright-Patterson AFB, Ohio.

Varley discussed the AFGL-cloud physics instrumentation on this aircraft in a report which described the data obtained on the cirrus flight of 29 October 1977. That flight investigated a band of pre-frontal cirrus and cirrostratus clouds. A similar weather situation existed on 4 April 1978 during a flight which is described herein. Dyer and Barnes discussed the C-130 instrumentation and summarized research in the area of ice crystals and snowflakes. In other reports, Varley and Brooks and Cohen reported on cirrus associated with stationary fronts east of the sampling area, and Varley and Varley and Barnes described the microphysical properties of non-frontal cirrus counds sampled on 18 and 21 March 1978, respectively.

⁽Received for publication 3 September 1980)

⁽Due to the large number of references cited above, they will not be listed here. See References, page 33.)

The purpose of the flight of 4 April 1978 was to investigate the leading edge of a band of cirrus and cirrostratus which was associated with a frontal system to the west of a sampling area located in southern Colorado and northwestern New Mexico. During the 24 hr after the flight, the frontal system passed through the sampling area and began to intensify over the central United States.

A second cirrus flight was conducted on 5 April 1978 in western New Mexico and eastern Arizona. By this time, however, the frontal system had moved well east of Albuquerque and very little cloudiness remained. Since the data obtained on 5 April were associated with the same system, results of the 5 April flight are included in this report, thus providing data during both pre-frontal and post-frontal conditions.

The flights of 4 and 5 April originated and terminated at Kirtland AFB, Albuquerque, New Mexico. The sampling portion of the 4 April flight was conducted near Farmington, New Mexico, while that of 5 April flight was made near Gallup, New Mexico. Figure 1 shows these locations. During both flights the MC-130E climbed to an altitude of approximately 30,000 ft (9.7 km) MSL to obtain data on the cirrus and cirrostratus clouds there. In both cases cirrus clouds existed at higher levels, but the aircraft was unable to climb these clouds, which were estimated to extend to 35,000 ft (10.7 km). Terrain in the area var as from 4000 to 9000 ft MSL (1.2 to 2.7 km), thus the aircraft was generally 21,000 ft or more above the ground.

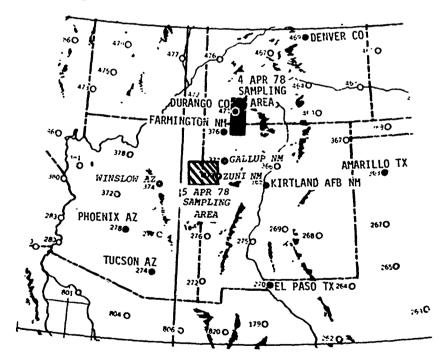


Figure 1. Sampling Areas of the Flights of 4 and 5 April 1978

Each flight provided approximately 75 minutes of data. On both cays, much of this time was spent in clear air during which very few particles were detected. Almost all of the 5 April flight occurred in clear air. Sub-visible cirrus particles were detected on both flights.

2. SYNOPTIC SITUATION

On the morning of 4 April 1978 a frontal system extended parallel to the Pacific Coast from a low pressure center off the coast of British Columbia. At 1800Z on 4 April, the low was 100 nautical miles northwest of Vancouver, BC, and the frontal system extended through western Nevada and central California, as depicted in Figure 2. The low pressure area itself does not appear on Figure 2. Although there was a stationary front in the Texas Panhandle, its influence did not extend to western New Mexico. Rather, the visible cirrus observed on the flight spread from west to east as the front in California moved east. By 0900Z on 5 April, the front had arrived in the sampling area, as shown in Figure 3.

During the early morning of 5 April, the front continued eastward, and by 1800Z it had moved into eastern New Mexico, as seen in Figure 4. By 2100Z on that day, it had combined with the low pressure center in western Kansas and the warm front in eastern Kansas to form an open wave. As can be seen in the GOES visible and infrared satellite pictures of Figures 5 and 6, most of the cloud cover was in advance of this front, while only some thin, tenuous cirrus remained over northwestern New Mexico, appearing on the infrared photo (Figure 5).

The main part of the 500 millibar pattern consisted of a long wave trough off the West Coast. As Figures 7, 8, and 9 show, a short wave moved around that trough and by 0000Z on 5 April (Figure 8) was over Nevada and western Arizona. By 0000Z on 6 April (Figure 9) the short wave had moved to the Texas Panhandle where it was aiding the development of the surface low in Kansas. A similar pattern existed at 300 millibars (the level at which sampling was conducted) as shown in Figures 10 and 11.

Rawinsonde observations for Albuquerque, New Mexico and Winslow, Arizona are presented in Figures 12 through 15. Figures 12 and 13 present 1200Z (0500 MST) data for 4 April. At that time both Winslow and Albuquerque were in the warm, dry ais mass ahead of the front. Both soundings show nocturnal inversions with that at Winslow being more pronounced. At Winslow, a second inversion at 3 km was probably a subsidence inversion associated with the high pressure ridge which had just passed. Figures 14 and 15 are for the same two stations at 1200Z (0500 MST) on 5 April. The front appears on the Winslow rawinsonde at a height of approximately 5 km. Both a temperature inversion and a wind shift were present at that

THE PROPERTY OF THE PROPERTY O

level, indicating a strong upper level frontal surface. At the time of the flights, however, the front aloft had little moisture as indicated by the large temperature/dew point spread and, as a result, little cloudiness. At Albuquerque at 1200Z on 5 April, a strong nocturnal inversion had developed near the surface, but at 1200Z, the front had not yet passed. Additionally, a thin layer of clouds at 6 km is indicated by an abrupt increase in dewpoint at that level.

Tables 1 and 2 show selected surface observations on 4 and 5 April 1978. On 4 April thin cirrus was reported throughout the New Mexico area, but there were thicker cirrus clouds reported in central and southern Arizona. On 5 April there were only occasional reports of thin cirrus in New Mexico and Arizona.

Table 1. Fepresentative Surface Weather Observations 4 April 1978

Time (Z)	Location	Cloud Height and Extent (100s ft)	Temp (°F)	Dew Pt	Wind (Dir/kt)
1740	Durango, CO	200 Bkn (thin)	53	43	090/04
1800	Farmington, NM	200 Ove (thin)	60	26	120/10
1800	Gallup, NM	250 Ovc (thin)	60	14	160/15
1800	Albuquerque, NM	Clear	66	24	270/14
1900	Farmington, NM	200 Ovc (thin)	63	18	270/04
1900	Gallup, NM	250 Ovc (thin)	60	14	160/15
1900	Albuquerque, NM	250 Ove (thin)	71	22	220/ 14G 18

Table 2. Representative Surface Weather Observations 5 April 1978

Time (Z)	Location	Cloud Height and Extent (100s ft)	Temp (°F)	Dew Pt (°F)	Wind (Dir/kt)
1800	Farmington, NM	50 Sct	47	27	280/15
1800	Gallup, NM	Clear	49	21	250/10G15
1800	Winslow, AZ	300 Bkn (thin)	51	24	230/05
1800	Phoenix, AZ	250 Sct (thin)	67	39	030/05
1800	Albuquerque, NM	75 Sct	58	21	260/11

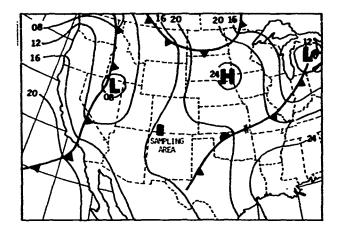


Figure 2. Surface Analysis 1800Z of 4 April 1978

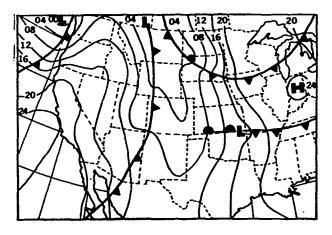


Figure 3. Surface Analysis 0900Z of 5 April 1978

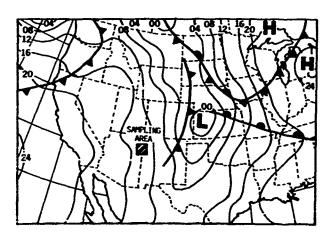


Figure 4. Surface Analysis 1800Z of 5 April 1978

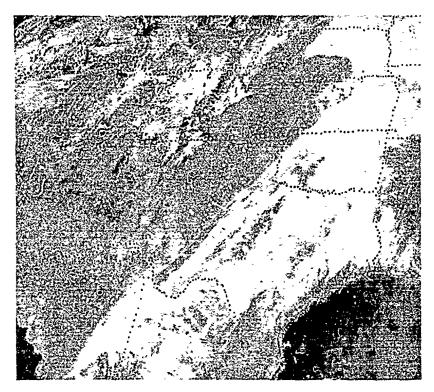


Figure 5. GOES Visible Satellite Photo 1830Z 5 April 1978

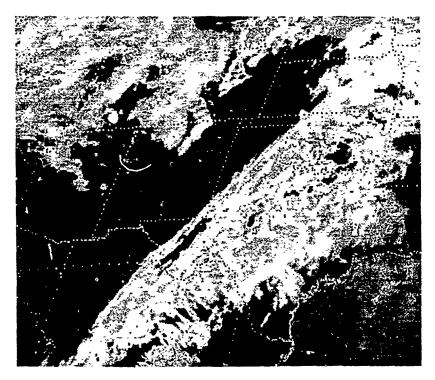


Figure 6. GOES Infrared Satellite Photo 1800Z 5 April 1978

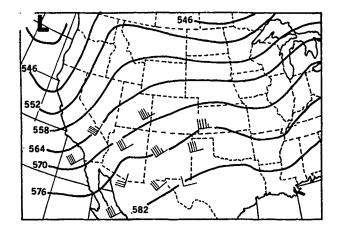


Figure 7. 500 Millibar Analysis 1200Z 4 April 1978

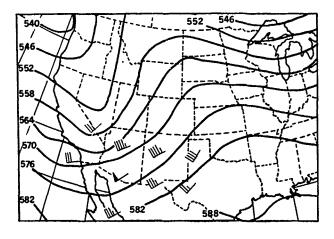


Figure 8. 500 Millibar Analysis 0000Z 5 April 1978

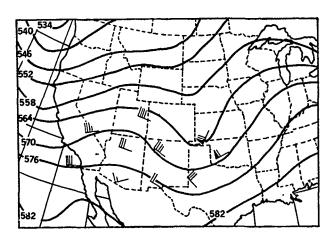


Figure 9. .500 Millibar Analysis 0000Z 6 April 1978

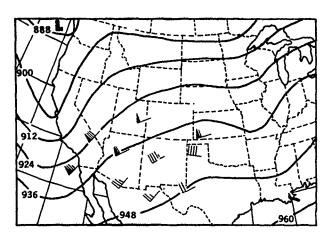


Figure 10. 300 Millibar Analysis 1200Z 4 April 1978

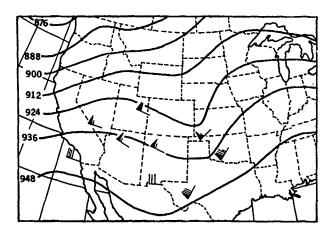
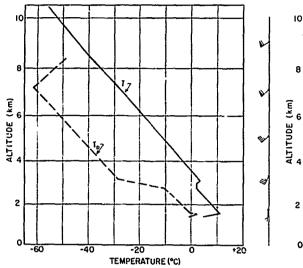


Figure 11. 300 Millibar Analysis 0000Z 6 April 1978

and the control of th

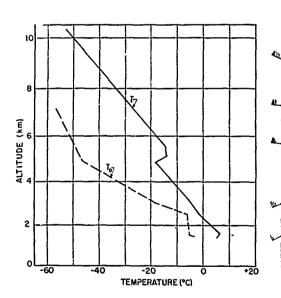


10 8 4 11110DE (4m)
2 0 -60 -40 -20 0 *20

TEMPERATURE (*C)

Figure 12. Winslow Sounding 1200Z 4 April 1978

Figure 13. Albuquerque Sounding 1200Z 4 April 1978



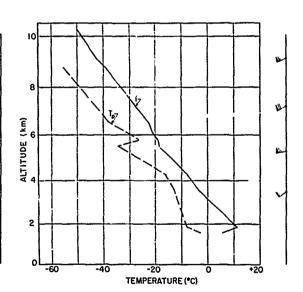


Figure 14. Winslow Sounding 1200Z 5 April 1978

Figure 15. Albuquerque Sounding 1200Z 5 April 1978

3. THE FLIGHT

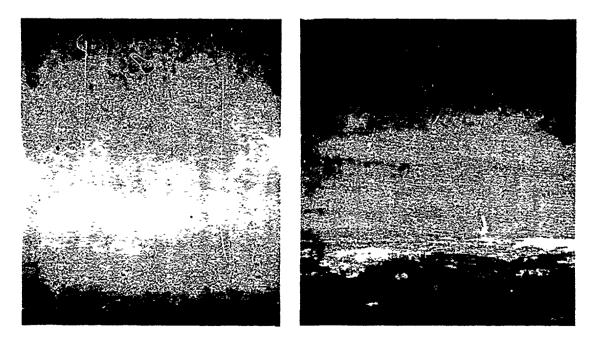
The aircraft departed Kirtland AFB at 1656Z on 4 April and flew toward Farmington in northwest New Mexico. By 1800Z the aircraft was at 29,000 ft MSL (8.8 km) and was beginning to encounter thin cirrus. Figure 16 shows the tenuous cirrus the aircraft sampled as well as the more dense cirrostratus clouds which were to move steadily eastward during the flight. During the next hour, the aircraft was going in and out of thin cirrus, but the thicker cirrus and cirrostratus remained 1000 to 4000 ft above the aircraft's altitude. Figure 17, a photo taken about 30 min after, 10 miles east of, and 20 miles north of the Figure 16 location, shows how the clouds had advanced and were becoming denser.

At 1830Z the clouds observed from the airplane were dense enough to produce a halo around the sun. By 1835Z the airplane was beginning to sample some of the thicker cirrostratus clouds. Figure 18, a photo taken within 5 miles of the location of Figure 16, shows the clear relatinable base of the cirrostratus below the aircraft. By 1855Z the aircraft was in the thicker cirrostratus. More particles and a wider variety of shapes, including many columns were observed. At 1900Z the aircraft began its return to Kirtland AFB, and by 1910Z was below the bases of the cirriform clouds. It landed at Kirtland at 1934Z.

On 5 April the aircraft departed Kirtland AFB at 1712Z and proceeded west toward Gallup, New Mexico and Winslow, Arizona, both almost due west of Albuquerque. As Figure 19 shows, there were fewer cirriform clouds on 5 April. The front had passed and only a few high, thin clouds were in the area. The aircraft climbed to 31,200 ft (9.5 km), but could not reach the main part of the visible cirrus. By 1830Z it was obvious that little data could be obtained in visible clouds the airplane began to return to Kirtland AFB. While enroute, it passed through the thin cirrus shown in Figure 20. The crew noted that this cirrus appeared to be fallout from higher layers. It was the only significant visible cloud encountered during the flight. The aircraft returned to Kirtland AFB at 1910Z.



Figure 16. Clouds at 29,000 ft at 1800Z on 4 April 1978



在一个人,我们是一个人,我们是一个人,我们是一个人,我们是一个人,我们是一个人,我们是一个人,我们是一个人,我们是一个人,我们是一个人,我们是一个人,我们是一个人,我 第二十二章 第二十二

Figure 17. Clouds at 1828Z on 4 April 1978 Figure 18. Clouds at 1837Z on 4 April 1978



Figure 19. Cirrus Clouds at 1752Z on 5 April 1978

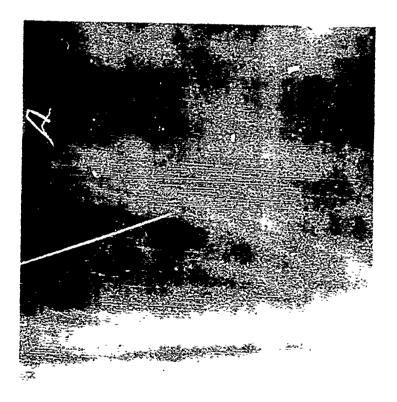


Figure 20. Cirrus Clouds at 1743Z on 5 April 1978

4. DISCUSSION OF DATA

Figure 21 shows profiles of height, temperature, ice water content, medium volume diameter, and density of particles during the 4 April flight. The first hour of this flight is further discussed in the next section on sub-visible cirrus. Three instances of increased particle counts, starting at 1822, 1836, and 1856Z respectively were selected for closer study. Observations taken during the 5-min periods starting at each of these times will be examined in more detail. Also, data from a 5-min period starting at 1836Z on 5 April are discussed.

- (a) At 1822Z on 4 April the aircraft entered a thin band of translucent cirrus clouds. Figure 22 shows the particle concentration observed during the time from 1822Z to 1827Z while the aircraft was in this band. Particles were observed in all channels of the cloud probe and also in the first two channels of the precip probe. Most of the particles were bullet rosettes. The vertical bars in the 2-D examples are 800 μ m in length. The nature of the cirrus was reflected both by the lack of large particles and the relatively low concentration of medium sized particles. The largest particles detected by the 1-D instruments were slightly less than 700 μ m in diameter. Figure 23 is a photograph of the cirrus clouds which provided these data.
- (b) The cirrus observed at 1836Z was more uniform and stratified. Figure 24 shows the clouds examined during the period from 1836Z to 1841Z. They were still tenuous; with small snow mixed with bullet rosettes. The Mission Director estimated the visibility to be 50 miles. The largest particles (see Figure 25) were still about 700 μ m in size, but generally fewer particles were observed than during the 1822Z to 1827Z period. As a result, the ice water content decreased by a factor of three. The medium volume diameters, however, were larger, because while the number of small particles (< 200 μ m) decreased by a factor of eight, the number of particles in the 200 to 700 μ m range decreased by a factor of two. Note the increase in size of the particles shown in the 2-D examples.
- (c) At 1856Z the aircraft was in a uniform band of cirrostratus which partially obscured the horizon. As Figure 26 shows, the medium volume diameter for the cloud probe during the 5-min period from 1856Z to 1901Z was higher than in the previous cases examined above. Also, there was a greater variety of particle types seen on the 2-D display at this time. The increase in the medium volume diameter is reflected in the larger particles in the 2-D example. The largest particles, however, remained in the 700 μ m range and the particle distribution curve changed only slightly. This band of cirrostratus was more closely associated with the approaching cold front, which explains the increased variety of particle types observed. The occurance of small snow, bullet rosettes, and columns is

のないない。 のないないできないできることが、これできる。 のないできることできることが、これできることができる attributed to mixing of particles from different growth regions by the vertical motions associated with the frontal dynamics.

(d) The flight of 5 April yielded only a small amount of data on visible clouds, but a 5-min period beginning at 1836Z did involve passage through some thin visible cirrus. Very few shadowgraphs of larger particles were recorded by the 2-D probes. Most 2-D particles were less than one diode (20 μm) wide. This may be due to the high true air apeed (about 280 knots/140 meters per second) which reduced the reliability of the 2-D system. The 1-D system recorded activity in the cloud and scatter probe ranges. There were data recorded in the first four channels (400 to 1400 μm) of the precip probe. The particle size distribution for this time period is shown in Figure 27.

According to the Mission Director's comments (see Appendix A) most of the cirrus was above the aircraft. Braham and Spyers-Duran calculates that cirrus particles may fall 20,000 ft (6 km) through clear air, so the cirrus sampled may have consisted mostly of particles which fell from denser cirrus above. As the satellite photographs (Figures 5 and 6) indicate, the cirrus in New Mexico was not directly associated with the front but rather with the post frontal short wave trough seen on Figures 8 and 9 (at 500 mb) and Figures 10 and 11 (at 300 mb). The cirrus was thinner and generally more tenuous than the prefrontal cirrus sampled the previous day.

Braham, R.R., and Spyers-Duran, P. (1967) Survival of cirrus crystals in clear air, J. Appl. Meteor. 6:1053-1061.

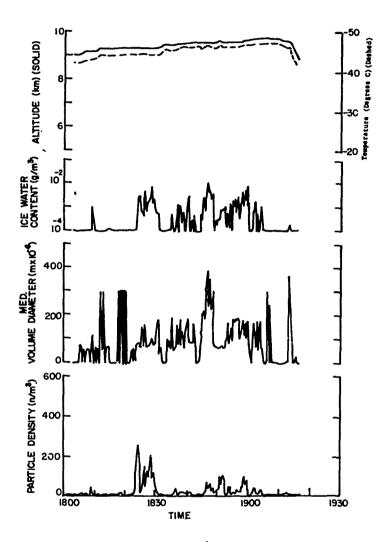


Figure 21. Altitude, Temperature, Ice Water Content, Medium Volume Diameter, and Particle Density for the Flight of 4 April 1978

ALTITUDE 9.31 km	TEMPERATURE Probe			URE44.3 °C
2	SCATTER		PRECIP(P)	C + P
ICE WATER CONTENT (g m ⁻³)	1.66E ⁻⁴	8.57F ⁻⁴	1.78E ⁻⁴	1.03E ⁻³
MED. VOL. DIAMETER (pm)	17	70	196	76

EXAMPLE 2-D PARTICLE FORMS



COMMENTS:

In thin translucent cirrus. Most observed particles were bullet rosettes. Largest particles were less than 700 microns in diameter.

nemberskingske modelske med bleke med bleke beske beske propositien beske beske beske beske beske beske beske

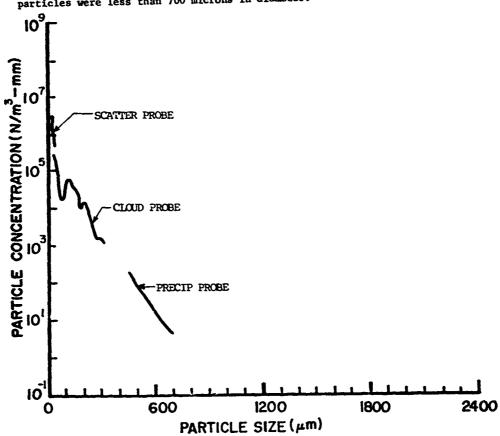


Figure 22. Particle Size Distribution 1822Z to 1827Z 4 April 1978

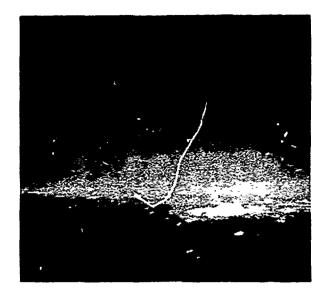


Figure 23. Cirrus Clouds During the First Sampling Period on 4 April



Figure 24. Cirrus Clouds During the Second Sampling Period on 4 April

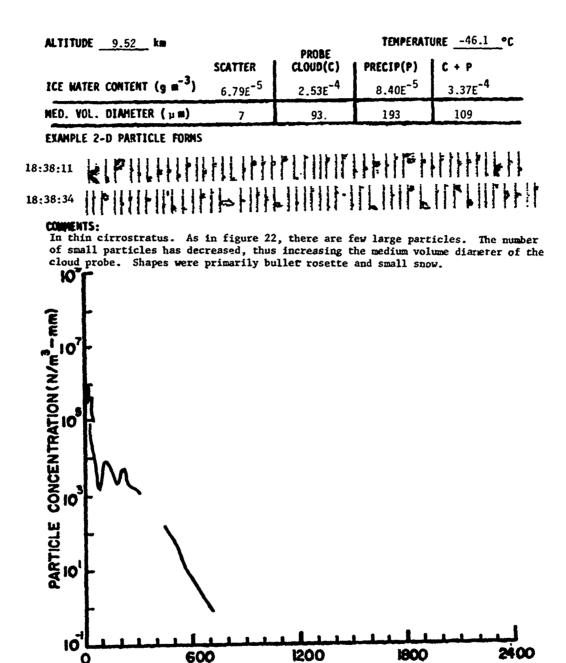


Figure 25. Particle Size Distribution 1836Z to 1841Z 4 April 1978

PARTICLE SIZE (µm)

ALTITUDE 9.64 km		PROBE	TEMPERATURE47.0 °C		
TOT HATER CONTENT / -3\	SCATTER	CLOUD(C)	PRECIP(P)	C + P	
ICE WATER CONTENT (g m ⁻³)	9.82E ⁻⁵	6.65E ⁻⁴	2.56E ⁻⁴	9.20E ⁻⁴	
MED. YOL: DIAMETER (pm)	14	105	192	122	

EXAMPLE 2-D PARTICLE FORMS

COMMENTS:
In imoderate cirrostratus. Size distribution is similar to figures 22 and 25, but the number of particles and the mean volume diameter of those particles recorded by the cloud probe have increased. Shapes include bullet rosettes, small snow, and columns.

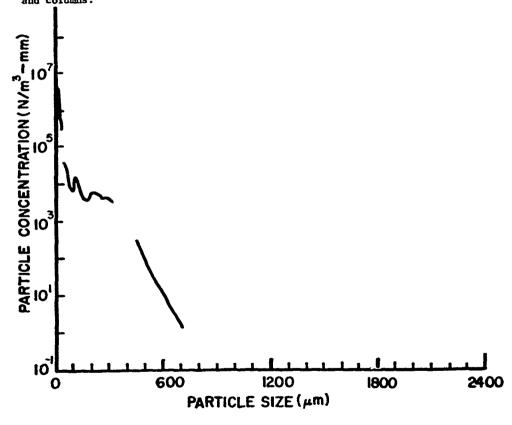


Figure 26. Particle Size Distribution 1856Z to 1901Z 4 April 1978

ALTITUDE ___9.67 km TEMPERATURE __47.9 °C **PROBE** CLOUD(C) **SCATTER** PRECIP(P) ICE WATER CONTENT (g m-3) 1.41E⁻⁴ 1.29E⁻⁴ 3.72E⁻⁵ 1.12E⁻⁵ MED. VOL. DIAMETER (u m) 305 313 52 EXAMPLE 2-D PARTICLE FORMS

18:36:47 18:38:17

In thin cirrostratus; probably fallout from higher cirrostratus. While the number of particles in the cloud probe range was small, there were many particles in the 500 to 1300 micron range of the precip probe.

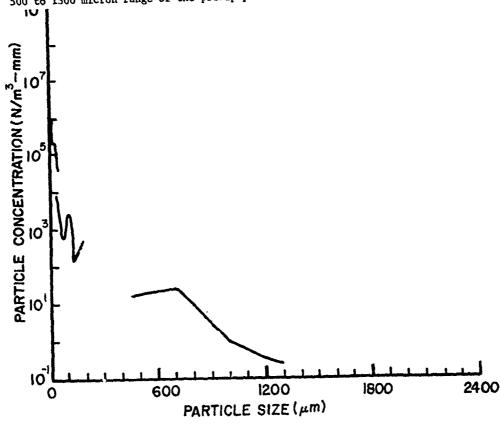


Figure 27. Particle Size Distribution 1836Z to 1841Z 5 April 1978

5. SUB-VISIBLE CIRRUS

While most of the particles observed on these flights occured while the aircraft was in visible cirrus or cirrostratus clouds, some particles were detected in clear air. Harnes has reported that several instances of this phenomena have occurred during other flights made by the MC-130E and another cloud physics aircraft. Particles 100 to 300 μm in diameter were recorded on these flights with a few particles in excess of 1 mm being detected in otherwise clear air. These particles may be considered to be components of cirrus clouds which are too tenuous to be seen by the human eye; hence, the name sub-visible cirrus.

Ohtake, Jayaweera, and Sakurai⁹ discuss the formation and observations of ice crystals in clear air at the surface in the polar regions. These particles were noted at similar temperatures, were of similar size and are commonly referred to as "diamond dust."

In addition to the large sub-visible cirrus particles observed when flying above 20,000 ft (6 km), there is generally a constant background distribution of small particles detected in the lower two channels (2 to 4 μ m diameter) of the scatter probe (ASSP). This background has been observed on all but a very few cirrus flights made by the MC-130E for this and other projects.

and the contract of the contra

At lower altitudes and at above freezing temperatures, both Varley 10 and Cohen 11 observed particles in clear air at altitudes between 100 and 1000 ft over the ocean which ranged in size from 2 to 30 μm and were recorded by the scatter (ASSP) probe on the MC-130E.

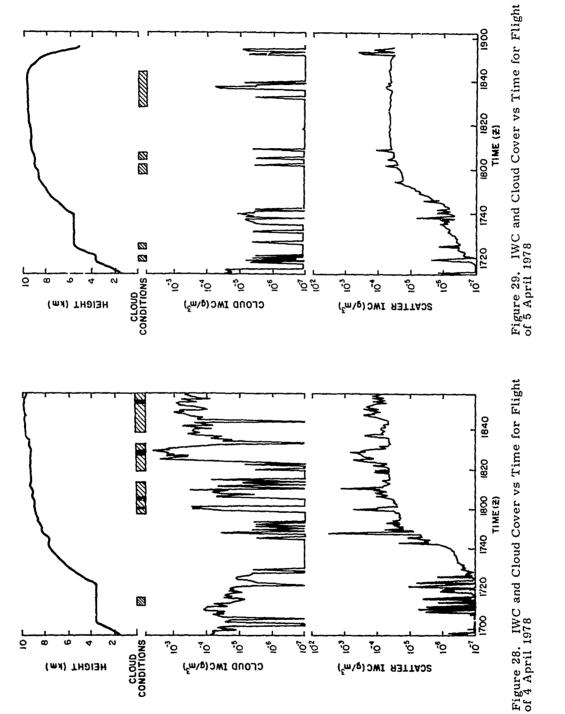
While Figure 21 shows the particle density and ice water content the aircraft found while in visible cirrus, the scale is not detailed enough to show the values obtained from the sub-visible cirrus and the ASSP background. Figures 28 and 29 show the ice water content recorded by the cloud and scatter probes for size ranges which includes these particles. As can be seen from Figures 28 and 29, the liquid water content due to these small background particles increased with altitude on both of the flights described in this report. Limitations of the ASSP for the measurements of ice crystals have been covered by Varley and Barnes. ⁶

^{8.} Barnes, A.A. (1980) Ice particles in clear air, Communications à la VIIIème Conference Internationale sur la Physique des Nuages, Vol I, Clermont-Ferrand, France, 15-19 July 1980, pp 189-190.

Ohtake, T., Jaweera, K.O.L.F., and Sakura', K. (1978) Formation mechanism of ice crystals in cloudless atmosphere. Proceedings of Conference on Cloud Physics and Atmospheric Electricity, Issawuah, Washington, 31 July - 4 August 1978, pp 122-125.

Varley, D. J. (1979) A Marine Boundary Layer Flight in Clear Air, ERP No. 652, AFGL-TR-79-0013, AD A069723.

^{11.} Cohen, I.D. (1979) Marine Boundary Layer Sampling Flight, Number 2, ERP No. 678, AFGL-TR-79-242. AD A



Portions of the flight during which the aircraft was in visible clouds are indicated by the "cloud condition" lines on Figures 28 and 29. These are subjectively determined densities of clouds the aircraft was in as determined from the Mission Director's comments (see Appendix A) and from the film taken by a 16 mm timelapse camera mounted in the cockpit of the MC-130E. Segments marked by partial shading indicate times during which the airplane was in "thin cloud." During these times visibility was not obstructed, but filaments of cloud could easily be seen passing close to the airplane. Segments marked by solid shading indicate times during which the aircraft was in clouds dense enough to partially or completely obstruct the horizontal visibility.

Even though there was a good correlation between the 1-D and the 2-D data there was not a one-to-one correspondence between the subjective assessment of whether the airplane was in or out of cloud and the PMS particle readings. The subjective assessment introduces the concept of target acquision against a similar background. A pertinent example is that of sub-visible cirrus in the tropics. High, thin cirrus was usually seen at sunrise and sunset at Kwajalein (8°N), but often not seen from the ground at noon time. Flights by a Learjet to 45,000 ft (15 km) during the middle of the day usually observed thin, wispy cirrus above the aircraft against the dark sky found at these high altitudes. Even though the thin cirrus was there, it could not be observed from the ground because of the sun light scattered by molecules and aerosols in the lower atmosphere.

Although the ASSP background appears similar on both flights, the presence of sudden increases in ice water content on both the scatter and cloud probes is much more evident on the 4 April flight (Figure 28). While this was most frequent while the plane appeared to be in cloud, it did occur while the airplane was not in visible cloud. As an example, at 1747Z on 4 April the airplane was in clear air, but, during a 30-sec period, eight particles ranging in size from 22 to 71 μ m were recorded by the 1-D cloud probe. These data are not included in the appendices, but are noticeable in Figure 28. As Figure 28 shows, there were many particles recorded by the cloud probe between 1740Z and 1750Z, even though the airplane was in clear air at the time according to the Mission Director's notes and a review of the 16 mm film.

The synoptic situation on 4 April was more dynamic, since a front was moving into the area, and there was more visible cirrus. This probably contributed to the presence of more sub-visible cirrus. Sub-visible cirrus also existed on 5 April behind the front, but it was less frequent. Typical sub-visible particle counts obtained in the lower two channels of the 1-D precip probe gave a number density of 0.5 to 1.0 m⁻³ which is similar to that obtained by Barnes⁸ in February 1980 using a modified 2-D precip probe.

On 5 April, some larger particles were sensed by the precip probe between 1842Z and 1844Z. These ranged from 400 to 2000 μ m in diameter. They were initially believed to be false indications, since particles of this size should have been observed by the crew. The Mission Director and technicians commented on the behavior of the 1-D precip probe 2 to 3 min after the particles were detected and, at that time, they felt that these particle counts recorded by the precip probe were false. This was near the end of the flight when the aircraft was returning to Albuquerque after finding very few clouds. The comments on the voice tape indicated that the Mission Director had been occupied with other duties during the time the particles were detected. In addition, the Mission Director had not been asked to look for sub-visible cirrus. The particle size distribution recorded by the precip probe from 1842Z to 1844Z appears to be exponential (Figure 30). This along with the absence of cloud probe data (partially attributed to a smaller sampling volume) plus the lack of an increase in the ASSP background strongly suggests that these were particles which had fallen out of thin, higher level cirrus clouds the smaller particles having been left behind or evaporated.

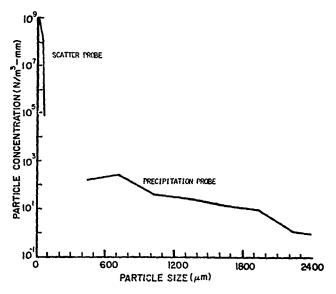


Figure 30. Particle Size Distribution 1842Z to 1844Z 4 April 1978

Inspection of the 2-D data confirmed the 1-D data when in cloud, but since the 2-D probes had not been modified at that time there were not enough 2-D data

obtained in sub-visible cirrus to fill the data buffers so that the data could be dumped onto tape for recording.

6. CONCLUDING REMARKS

The flights of 4 and 5 April 1978 have provided new data in thin ice-particle clouds. All four data periods examined involved thin cirrus at temperatures of -40°C and altitudes in excess of 30,000 feet. Weickmann 12 and Grunow 13 noted that temperature affects the size and shape of crystals. Unfortunately, the MC-130E could not safely fly higher to more fully investigate the thin cirrus in the area. Only one of the previously cited reports (Varley 5) deals with cirrus that are as high at as cold a temperature as these. The work of most other investigators (for example, Heymsfield and Knollenberg 14) also generally deals with cirrus at lower altitudes and warmer temperatures. When sampling in visible clouds, the PMS 1-D instruments did, however, show a fairly large number of particles in the cloud probe range (26 to 311 μ m), although very few were found in the precip probe range (437 to 4676 μ m). Many particles were recorded while the airplane was not in visible cirrus. Thus there was sub-visible cirrus surrounding the visible clouds.

The sub-visible cirrus was sometimes formed by particles precipitating from higher cirrus. There were, however, instances of particles being formed in clear air with no visible cloud present.

There is no clear-cut boundary between visible and sub-visible cirrus. Rather, there is a continuity ranging from visible cirrus through tenuous cirrus to sub-visible cirrus.

The approach of the front led to a larger variety of particle types, but did not seem to have much effect on the ice water content or maximum particle size. These seemed to be constant within the mass of cirriform clouds which preceded the front.

The Mission Director, Capt Douglas Brooks, provided numerous photographs and comments on the 4 and 5 April 1978 flights. Some of the former are included in the body of this report while excerpts from the comments are found in Appendix A.

Appendix B contains the particle distributions for each of the four 5-min periods examined during this report.

Appendix C contains the particle distributions for 30-sec averages of selected periods during the flights of 4 April.

- 12. Weickmann, H.K. (1957) The snow crystals as an aerological sonde, Artificial Stimulation of Rain, Permagon Press, pp 315-325.
- Grunow, J. (1960) Snow crystal analysis as a method of indirect aerology, Physics of Precipitation, Am. Geophys. Union, pp 130-141.
- 14. Heymsfield, A.J., and Knollenberg, R.G. (1972) Properties of cirrus generating clouds, J. Atmos. Sci. 29:1358-1366.

Appendix D contains particle distributions for 30-sec averages of selected periods during the flight of 5 April. Some portions of both flights in which no data were recorded in either the cloud or precip probes have been omitted.

The particle distributions in Appendices C and D include data taken both while the airplane was in visible cirrus and while the airplane was not in visible cirrus. In addition, particle distributions from the intermediate level shown in Figures 28 and 29 are included. This level (about 6 km) represents the lower boundary of the region in which visible and sub-visible cirrus were present.

A list of abbreviations used in this report is presented in Appendix E.

References

- Varley, D. J. (1978) Cirrus Particle Distribution Study, Part 1, Air Force Surveys in Geophysics 394, AFGL-TR-78-0192, AD A061485.
- Dyer, R. M. and Barnes, A. A. (1979) Microphysics of Ice Clouds A Survey, Air Force Surveys in Geophysics 411, AFGL-TR-79-0103, AD A077020.
- Varley, D.J., and Brooks, D.M. (1978) Cirrus Particle Distribution Study, Part 2, Air Force Surveys in Geophysics 399, AFGL-TR-78-0248, AD 063807.
- 4. Cohen, I.D. (1979) Cirrus Particle Distribution Study, Part 5, Air Force Surveys in Geophysics 414, AFGL-TR-79-0155, AD A077361.
- Varley, D. J. (1978) Cirrus Particle Distribution, Study, Part 3, Air Force Surveys in Geophysics 404, AFGL-TR-78-0305, AD 066975.
- Varley, D. J., and Barnes, A. A. (1979) Cirrus Particle Distribution Study, Part 4, Air Force Surveys in Geophysics 413, AFGL-TR-79-0134, AD A074763.
- 7. Braham, R. R., and Spyers-Duran, P. (1967) Survival of cirrus crystals in clear air, J. Appl. Meteor. 6:1053-1061.
- 8. Barnes, A.A. (1980) Ice particles in clear air, Communications à la VIIIème Conférence Internationale sur la Physique des Nuages, Vol I, Clermont-Ferrand, France, 15-19 July 1980, pp 189-190.
- Ohtake, T., Jaweera, K.O.L.F., and Sakurai, K. (1978) Formation mechanism
 of ice crystals in cloudless atmosphere. Proceedings of Conference on
 Cloud Physics and Atmospheric Electricity, Issawuah, Washington,
 31 July 4 August 1978, pp 122-125.
- Varley, D. J. (1979) A Marine Boundary Layer Flight in Clear Air, ERP No. 652, AFGL-TR-79-0013, AD A069723.
- 11. Cohen, I.D. (1979) Marine Boundary Layer Sampling Flight, Number 2, ERP No. 678, AFGL-TR-79-242, AD A
- 12. Weickmann, H.K. (1957) The snow crystals as an aerological sonde, Artificial Stimulation of Rain, Permagon Press, pp 315-325.

References

- Grunow, J. (1960) Snow crystal analysis as a method of indirect aerology, Physics of Precipitation, Am. Geophys. Union, pp 130-141.
- 14. Heymsfield, A.J., and Knollenberg, R.G. (1972) Properties of cirrus generating clouds, <u>J. Atmos. Sci.</u> 29:1358-1366.

Appendix A

Transcript of Mission Director's Comments From the Flights of 4 and 5 April 1978

Following are selected comments made by Captain Douglas Brooks, the Mission Director on the flights of 4 and 5 April 1978. Abbreviations used are listed in Appendix E.

4 April 1978 Mission Director Comments

- 17:58:27 In slight right turn-should be entering lower Ci shortly.
 - :34 Thin, striated Ci.
 - :48 Starting to get significant updates.
- 18:00:06 Just at bases. Entering another patch. At 36° 54'N, 107° 23'W. Hdg: 222°. 29,600 ft.
 - 01:25 Passing out of one finger of cloud.
 - :39 Below it. Notthing on ASSP.
 - :49 Main bulk above-still very thin, a portion comes to the aircraft's flight level.
 - 04:21 Entering area of very thin Ci below main bulk.
 - 05:24 Hdg 104°, IAS 153 kts, OAT -28.5°C, TAS 246 kts.
 - :27 In cloud. Very near bases of bulk. In and around bottoms.

 Sun visible, contrails above.
 - 06:17 In and out of undulating bases. No halo or other optical phenomena.
 - 07:05 Ground clearly visible. So are contrails and more Ci above.
 - 08:15 In and out of bases. Below bases of main cloud. In an autonomous layer below the main thin layer which covers the entire area.
 - :44 In and out of very thin cloud.

- 18:10:32 Cloud is definitely Ci. Remnants of contrails. Just in bases at 29,900 ft. Nothing on snowstick.
 - 11:11 2-D max size 800 to 1000 microns. Irregular ice. Bullet rosettes.
 - :47 Back in again. Very light. Just in bases of main layer. Sun above. No halo.
 - 12:21 Density varies, out still thin Ci. Aircraft 2000 ft above Ci, clearly visible, 4000 ft.
 - 13:57 Ci undulates. Main bulk still above.
 - 14:35 Very small stuff. Dots on 2-D.
 - 15:17 Stuff is moving in from the west.
 - 16:01 Ci is moving in this direction.
 - :44 Multi-layered cloud is below overcast layer. Right at 29,000 ft, 36° 43'N, 107° 18'W. OAT -32°C, IAS 151 kts.
 - 18:39 Above Cs, below striated Ci.
 - :51 In very thin Ci. Near bases. Can't be over 1000 ft thick.
 - 22:30 Getting slightly more dense. Bases clearly visible below.

 No optical phenomena.
 - 23:11 Still recording particles.
 - :37 Some clearly bullet rosettes, others rounded. Activity in droplet probe.
 - 26:10 In very uniform Ci. Very thin cloud.
 - 27:01 More like uniform Cs. Particles very small.
 - 28:11 Tops visible. More Ci above. Clearly defined halo. Associated with sun above.

- 30:50 Climbing toward upper layer of Ci.
- 31:31 Uniform Ci above-extends at least to Albuquerque.
- 32:49 36° 42'N. 107° 27'W. Turning west, Hdg 280°, Alt 30,600 ft.
- 33:21 Leading edge of Cs is 10 nm W. More Ci above. Climbing will put us near tops of clouds.
- 34:24 Layer goes from 28,900 ft to 31,000 ft.
- 35:59 Entering particles from leading edge of cloud. Cs more uniform than the Ci above.
- 18:36:33 2-D cloud probe updating. Particles are bullet rosettes.
 - :09 In layer of Cs. It goes for another 4 to 5,000 ft.
 - 37:16 Hdg 320°. In middle of layer. Bases clearly visible. Ci above. Visibility 50 to 60 miles. At 30,800', 248 kts, OAT -34.5°C IAS 152 kts, 36° 54'N, 107° 45'W.
 - 38:39 Bases of Cs are uniform, Ci above less uniform.
 - 39:30 In area of very thin Cs, Ci 500 ft above. Layers appear to merge.

- 18:40:17 Little change now. Couple of hundred ft below tops, approaching more dense Cs and Ci.
 - 42:24 To the west clouds get lower and more dense.
 - 42:43 37° 05'N, 108° 10'W. Passed into Cs. Can see below, also Ci layer above.
 - 44:34 Snow stick-100 to 200 micron particles.
 - 45:33 Almost continually in layer of Cs. Uniform, above are more striated Ci.
 - 46:17 Hdg 030°. At 37° 16'N, 106° 13'W, OAT = -33.5°C, nice halo.
 - 47:19 22 degree halo, light at edges. Definitely in Cs.
 - 48:02 In very thin cloud. Beautiful halo. Ground and sky visible.

 Alt 30, 885 ft.
 - 48:52 Hdg 140°. At 37° 22', 107° 55', 31, 100 ft. At top of Cs layer.
 - 50:22 Particles are very small. At boundary between the two layers.
 - 51:15 Intensity is very light. Only an occasional update. Halo is lost.

 No longer in Cs. Ci above does not produce a halo.
 - 51:49 Weak halo, much less noticeable than one with Cs.
 - :50 Nice bullet rosettes and columns on 2-D display.
 - 53:15 Particles come from Ci above. Generated at this level. At level of contrail. Suddenly halo is much more intense. Associated with cloud above. 37° 10'N, 107° 43'W, 30,900 ft, OAT = -34.5°C.
 - 56:04 Altitude 30,900 ft. Passing into Cs. Heading 160° in thin Cs.
 - :19 Altitude 30,950 ft, Heading 210°. Horizon distantly visible.
 Uniform cloud. Break between it and Ci layer above.
 - 57:13 Particles are beautiful, look like columns or side planes, bullet rosettes and columns. Bears study.
 - :46 Very nice elongated columns on 2-D display.
 - 58:05 In cloud-very thin.
 - 59:40 LWC:02 g m⁻³.
 - :51 Still solidly in Cs.
- 19:01:50 Can see horizon at least 100 miles away.
 - 02:30 36° 46'N, 107° 29'W. Cloud less dense. Still in Cs but it is extremely thin. Ci clearly visible above.
 - 03:44 Still very thin. Little change.
 - 04:20 Extremely thin Cs.
 - 05:29 36° 35'N, 107° 24'W, 31, 300 ft, 256 kts, OAT = -34.5°C.
 - 06:39 Nothing falling from Cs layer above. Clear sky.
 - 08:56 End of Ci. Below the bases.

5 April 1978 Mission Director Comments

- 17:12:15 Takeoff from Kirtland AFB.
 - 30:00 Winslow reporting Ci at 30,000 ft.
 - 49:11 Contrail to the left.
 - 52:50 Ci is definitely striated.
 - 53:31 Portions of Ci are very thin.
- 18:15:00 Climbing toward Ci.
 - 19:43 35° 30'N, 109° 15'W. Abo e. n Ci unable to reach main Ci.
 - 21:40 Two layers, complete Cs above, some below, right on the nose.
 - 22:55 This level might get some of the more dense Ci.
 - 25:41 We appear to be approaching a patch.
 - 30:10 Ci above, but none at our level.
 - :25 Return to base at this level.
 - 37:09 Very tiny particles on 2-D cloud probe.
 - :32 Getting very thin Ci, possibly ice crystals from Ci above.
 - 38:08 Extremely thin, above us.
 - 39:00 Just below Ci. To the right, it may come to our level.
 - :46 I think we're in it.
 - 40:06 Passed through an area just at flight level. An aircraft above us is at least 1000 ft below Ci.
 - 44:00 Did encounter small ice crystals. At the time the main bulk of clouds was 1000 ft above us.

Appendix B

mendak nemi bilangan dan mengangangan mengangan pangan pangan kengangan kengan mengangan kangan pangan manan m

Selected 5-min Average Particle Distributions From the Flights of 4 and 5 April 1978

The particle distributions in Appendices B, C, and Γ are in the same format as those in Appendices B and C of the previous report in this series. 4

Five-min averages are included for the four periods examined in detail in the body of this report.

A Particle Distribution in tenuous cirrus at 1822-27Z on 4 April 78

FL1GHF c78-15 DN 4 APR 78 331 SECOND AVERAGING
TYPF: BULL-R03E INTEPVAL START: 18:22:53

	PARTICLE SIZE	DISTRIBUTE	CONS C	E+1/43	-MM)	PRESS	(M3)
3175	SCATTER	SI7F 9	CLOUD	SI7E	PPECIF	293	3.12
(MU)		(40)	903E	(MU)	PROBE		
	.,,				, , , , ,	ALT	(KM)
2	3.442+89	26 3,	20=+09	5 437	2.00E+ú2	· ·	3. 31
3	9.46E+07	47 7	.90E+66	4 706	3.25E+0U		
5	1.37E+07	67 1	32E+U	4 1711	3 <i>i</i>	T -45	990
7	9.89E+06	87 2	40=+0	4 1316	J.		
g	3.46E+u6	198 7	615+9	4 1522	o .	FPT -43	3. 2C
		128 3	91:+0	4 1327	3.		
		148 2	955+4	4 2233	0.	TAS (4/S)
					0 .	13	2.53
					n .		
						Z 4. G1	-03
						FOR4 F	. 40
					0 .		
			635+0	-	0.	NT (N / M	++3)
			.225+0	3 4676	•	6.1775	E+ 03
					. •		
						To:	TALS
INC	1.66E-04	8.	.57E-J	4	1.78E-04	1. 63	L-03
1E.D		-	JU		196		76
3 7 9 11 12 14 16 19 21 22 27 1HC 15D	3.46E+u6 5.49E+06 2.77E+N6 4.65E+06 3.35E+06 1.12E+N6 3.66E+05 1.22E+u6 1.32E+u6 1.32E+u6	87 2, 198 7, 128 3, 148 2, 169 8, 189 1, 239 2, 230 2, 271 1, 291 1,	46 + 01 61 F + 91 91 E + 91 95 E + 41 86 E + 91 64 E + 91 62 E + 91 62 E + 91 63 E + 91 62 E + 91 63 E + 91 63 E + 91 63 E + 91 63 E + 91 63 E + 91 63 E + 91 63 E + 91 63 E + 91 63 E + 91 64 E + 91 65 E + 91 66 E + 91 67 E + 91 67 E + 91 68	4 1316 4 1622 4 1327 4 2233 2573 4 2573 3 3149 3 3454 3 3765 4 1776	3. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0	TAS (1 136 Z 4. G16 FOR4 F NT (1 / M 6.1775)	3. 4/2. E- +++ TA-

B. Particle Distribution in weak cirrus at 1836-41Z on 4 April 78

FLIGHT E78-16 ON 4 APR 78 301 SECOND AVERAGING
TYPE: RUL--ROSE THIERVAL START: 18:36;61

P.	PTICLE SIZE	DISTRI	MUN) ENCITUE	PER/M*3	-MM)	PRESS (MB)
3175	SCATTER	SIZE	SLOUD	SIZE	PRECIP	284.41
(40)	PROPE	(MU)	PROSE	(MU)	PROBE	
("07	FRONE	(110)	NO DE	(1/0/	1	ALT (KM)
2	3.17£+09	26	6.555+64	437	1.14E+02	9. 52
3	1.03E+08	47	1.462+04	7 E ö	4.47E-01	
? 3 5 7	2.216+05	67	1.62E+03	1711	0 •	T -47.89C
7	1.64E+76	87	2.54=+03	1316	3 .	
3	2.75E+U5	1 ũ 3	8.51E+03	1622	3 •	FPT -44.10
11	8 - 99E+u5	128	6.075+93	1927	3 •	
12	5.14E+u5	148	3.45F+03	2233	0.	TAS (M/S)
14	5.91E+05	169	1.81E+03	2538	0.	131.78
15	3.J6E+05	189	4.51E+03	2843	0.	
18	3.58E+85	219	3.23E+03	3149	0.	Z 1.73E-03
19	1.27E+06	230	2,246+03	3454	0.	
21	3.8>E+35	250	1.452+03	3760	9.	FOR4 F .46
23	2.58E+05	271	1.342+03	4065	0.	
25	4.90E+85	291	1.23E+43	4370	0.	NT (Y/M**3)
27	1.29E+05	311	8.852+02	4576	3.	1.1128£+03
						TOTALS
IWC	5.795-05		2.535-04		8.40E-05	3. 37E-04
1ED 0	7		9*		193	109

C. Particle Distribution in uniform cirrostratus at 1856-1901Z on 4 April 78

FLIGHT E78-16 ON 4 APR 78 7J1 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 18:56:00

PA	RTICLE SIZE	nISTRI:	BUTIONS (NUM	BER/H#3	-MM)	PRESS (MB)
SIZE	SCATTER	STZE	CLOUD	SIZC	PRFCIP	279.36
(MU)	PROBE	(40)	2R03F	(MU)	PPOBE	
						ALT (KM)
3	2.97E+09	26	5.03F+04	437	3.24E+02	9.63
3	1.52E+08	47	4.250+04	716	1.23E+00	
3 5 7 9	7 . 6cE+05	67	9.895+03	1011	0.	T -48.910
7	6.f7E+06	87	7.63r+03	1716	3 .	
9	4.14E+u6	108	1.865+94	1622	n .	FPT -44.40
11	3 . u 6E+ 00	128	7.12"+03	1927	3.	
12	1.45E+Ct	148	4.80F+u3	2233	9.	TAS (M/S)
14	1.618+06	169	3.48:+03	2538	3.	129.17
15	1.19E+06	189	5.97=+33	2843	ő.	10 301
18	8 . 16E+uF	209	7.15"+03	3149	ņ.	Z 5.33E-03
19	5.81E+65	530	8.051+07	3454	j •	2 34 302 63
21	5 . 0 2E+05	250	4.06:+03	3760	J 4	FORY F .46
23	6.59E+95	271	4.455+83	4065	9.	101(1 1 145
25	7.13E+05	291	4.895+03	4370	0.	NT (N /M**3)
27	4.74E+35	311	7.355+03	4575	r.	2.7718F+P3
٠.	, , , , , , , , , , , , , , , , , , , ,	02.	40 7. 1 0 0	-979	, •	2011 1014:3
						TOTALS
INC	9.82E-05		5.65E-04		2.56E-04	9. 20E-04
C D3F	14		175		192	122

D. Particle Distribution in thin cirrus at 1836-412 on 5 April 78

FLIGHT F78-17 ON 5 APR 78 331 SECOND AVERAGING
TYPE: BULL-R03E INTERVAL START: 18:36:00

	PARTICLE SIZE	DISTOI	SUTIONS (NUMBER/M#3-	-M4)	PRESS (MB)
31 Z	E SCATTER	SIZE	CLOID	SIZE	PRECIP	277.82
(HU)	PROBE	(UP)	PROSE	(MU)	PROBE	
						ALT (KM)
- :	2 -62E+89	26	1.23=+6	437	1.32E+01	9.67
	3 1.49E+08	47	2.44E+G	3 706	2.135+01	
:	5 5.53E+05	57	3.82E+0	2 1011	7.85E-01	T -49.750
-	7 / 49E+05	57	2.495 +8	3 1716	2.06L-01	
•	2 2.62E+09 3 1.49E+08 5 5.53E+05 7 /.49E+05 3 5.09E+05	108	1.546+0	5 1522	٥.	FPT -49.40
1		128	1.145+01	2 1927	0 •	• • • • • • • • • • • • • • • • • • • •
1		148	3.60=+0	2 2233	0.	TAS (M/S)
1		169	1 •	2538	0.	139.09
13	2.182+05	189	0.	2843	0.	
1.9	3 2.42E+L5	239	q •	3147	1.	Z 9.99t-03
1	9 4.836+84	530	ü.	3454	0.	
2:	1 4.85E+04	256	j.	3760	0 •	FORM F .21
2.	3 2.41E+04	271	£ • 2	40 65	0.	
2		291	J.	4370	9 •	NT (4/H*#3)
2	7 2.425+54	311	0.	4576	0.	1.5910E+02
						TOTALS
INC	3.72E-05		1.126	5	1.296-04	1.41E-04
450	D S		εŝ		313	305

Appendix C

Designable of the contraction of

Selected 30-sec Average Particle Distributions From the Flight of 4 April 1978

Thirty-sec averages are provided for the portion of the 4 April 1978 flight in which the probes registered the most activity. Other portions of the flight have been deleted to conserve space.

AFHL CIPRUS STUDY BY AFGL FLIGHT E78-16 JN 4 APR 75 30 SECOND AVERAGING TYPE: SULL-RDSE INTERVAL START: 17:11103	
AFML GIPRUS TUDY SY AFGL FLIGHT E78-16 ON 4 APR 7R 30 SECOND AVERAGING TYPE: GULL-ROSE INTEPVAL START: 17:10:03	

DDFSC (MB)	60,444		ALT (KM)	3,63	;	Jude- I		FPT -28.70		TAS CHIS	6-671		7 5.015=16		FOR4 F2.27		NT (4 /H++3)	8.5373E+02	TOTALS 7.75E-05 25
_	SECTE	PROBE																	6
WW-E	ā			•	9	-	-												ć
HASER/H	12 15	5								2233	2539	2843	67 12	1645	3760	6964	1227	4576	
BUTIONS CMU	20.03	2R09E		4.022+05	2.265+04	1.77=+04	•	1.445+03	;	0.	•	:		•	٠.		.	.	7.755-05
DISTAL	SIZE	Ę		26	47	67	87	138	: 58	148	169	169	209	230	250	271	291	311	
PATICLE SIZE	SCATTER) PROBE (4U) 2R09E (4U) PI		7.01E+06	•	9.	•		•	•			÷	:				÷	ó.11£≈08 2
ď	37.15	5		N	m	10	~	Φ		~	ä	16	18	13	7.	23	5	27	INC 450 D
PRESS (MB)	047.85		41.1 CKE	3.61		T34C	•	FPT -29.30		TAS (H/S)	150.84		2.9.71E-06	;	FOR4 F1.46		(の・サイン・) レス	2.43 20 E+03	TOTALS 1, 19E-04 29
			₹Y (XX	3.61		T34C	•	FPT -29.30		TAS (H/S)	150.84		2.9.716-06	•	FOR4 F1.46		(の・・エノア) レス	2.43 20 E+03	TOTALS 1, 19E-04 2
	PRECIP 647.85		AT (XX)	3.61	•	0. T34C		0. FPT -29.3C	•	9. TAS (H/S)	150.84		1. Z.9.71E-06		1. FORY F1.46	•0	0. NT(4/H003)	0. 2.4320E+03	101ALS 1, 19E-04 2 29
		PROBE	부	•	•	•	•		•	2233 9. TAS (H/S)	•0			••		•		•	TOTALS 0. 1.19E-04 2. 29
(NUMBER/N*3-MM)	SIZE PRECIP	(MU) PROBE	복	437 0.	706 0.	1011 0.	•	1622 0.	1927 0.	2233 9. TAS	•0			••		•		•	1.195-04 D. 1.19E-04 29 3
(NUMBER/N*3-MM)	SIZE PRECIP	(MU) PROBE	► 	+.28:+05 437 0.	706 0.	1.765+04 1011 0.	4.205+03 1316 0.	2.865+03 1622 0.	9. 1927 0.	2233 9. TAS	n. 2538 D.	3. 2943 3.	3149 13.	3454 3.	0. 3760 1.). 4165 0.	n. 43/0 0.	J. 4576 U.	 6
(NUMBER/N*3-MM)	SIZE PRECIP	PROBE	► 	+.28:+05 437 0.	47 9.775+64 706 0.	1.765+04 1011 0.	4.205+03 1316 0.	108 2.865+03 1622 0.	9. 1927 0.	146 il. 2233 9. TAS	n. 2538 D.	189 3. 29/3 3.	209 J. 3149 J.	3454 3.	250 0. 3760 9.). 4165 0.	n. 43/0 0.	J. 4576 U.	 6

PTESS (HB)	· (KH)	10.0	7		FPT ~25, 30	2	TAC (H/C)	707034	******	7 1. 255-06		FORT E1.12	37.17	10 44 17 17 LX	4.3727E+02	TOTALS	2, 22£-05 34
H) PREC.: PROBL																	0
W-E			73		6												e.
SIZE (HU)	4	705	1311	1316	1622	1927	2233	2538	2843	3143	3454	3760	4065	4379	4676		
BUTIONS (NUM CLOJD PROBE	5.765+44	1.50=+04	3.575+03	•	2.875+03	;		***	.0	•	•	٠,	•	•	•		2.2.2E + 0.5
(UY) SIZE (YU)	26	7	29	20	ŝ	128	148	697	1 89	219	230	250	271	291	311		
PARITCLE SIZE DISTRIBUTCNS (NUMARP/w*3-MM) SCATER SIZE CLOJO PROBE (MU) PROBE (MU) P	9.8JE+u6		:	2.26 + 05	•	•	:		;	:	•	2.26E+05	•	÷	:		21
91 ZE (HU)	8	•	10	•	ጥ	7	12	4	÷	64	19	1	23	52	27	9	
, e	8L f (KH) 3.61		1270		FPT -29.52		T&S (H/S)	150,76		2, 9, 206-06	;	EOR4 F1.58		(りゅきエノエンレン	24 31 94 E+03	TOTALS	1
			1270					150,76		2, 9, 20£-06	;	EOR4 F1.58		(りゅうエンエンレズ	24 31 94E+03	TOTALS	4. C.E.E.E.E.E.E.E.E.E.E.E.E.E.E.E.E.E.E.
ROBE		•	0. T27C				185									TOTALS	4 C C C C C C C C C C C C C C C C C C C
ROBE	9LT 0.	706 O.	٥.	0.	D. FPT		160	•	•	•	•	•	•	• 0	•	TOTALS	1. D. L. C.
(NUMBER/N+3-MM) Size Precip (MU) Probe	437 0. ALT	•	1911 0. T	1316 D.	1622 0. FPT	1927 0.	2233 0. 185	2534 0.	2843 0.	3144 0.	3454 3.	3760 0.	4065 0.	4370 D.	4575 0.	**************************************	10 10 10 10 10 10 10 10 10 10 10 10 10 1
(NUMBER/N+3-MM) Size Precip (MU) Probe	4.46E+05 437 0.	706 O.	2,125+04 1011 0. T	n. 1316 D.	1.43E+03 1622 0. FPT	1.06±+03 1927 0.	0. 2233 0. 165	0. 2538 0.	U. 2843 D.	0° 3144 0°	0. 3454 3.	0. 3760 U.	g. 4065 g.	0. 4370 0.	3. L575 0.	**************************************	27
ROBE	4.46E+05 437 0.	9.J3E+U4 706 0.	2,125+04 1011 0. T	n. 1316 D.	1.43E+03 1622 0. FPT	1.06±+03 1927 0.	0. 2233 0. 165	0. 2538 0.	U. 2843 D.	0° 3144 0°	0. 3454 3.	0. 3760 U.	g. 4065 g.	0. 4370 0.	3. L575 0.		27

on de state de de la come de la c

L

AFHL CIRPUS STUDY BY AFGL
FLIGHT E78-16 JN 4 APR 78 30 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 17:110:31

AFWL CTPRUS STINN BY AFGL
FLIGHT ET8-16 JN 4 APR 76 30 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 17:11:3)

AVERAĢING 17:13:03	PRESS (MB) 647.65	ALT (KH)		T .01C	FPT -26.20	TAS (M/S)	151.23	Z 3. 66£-06	FORM F1.64		5.7321E+02	TOTALS 3.946-45 27	AVERĀGING 17813830	PRESS (MB) 647.67	ALT (KH)	3.62	2000	FPT -30.90	TAS (H/S)	150.69	5 8. 436-45	FOR4 F .3A	. ;	NT (4/M++3) 2.5734E+02	TOTALS 2.95E-05 29
7 AFGL 70 SECOND Starte	3-MM) PRECIP PROBE		. 60		000			-		00	::	ပ 6	Y 9Y AFGL 39 SECOND AV	-NN) PRFCIP	300	7.15E+00				• 6	:	• •			6.11F-36 191
` ₹	9FP/H*	437	766	1911	1622	2234	2538	3149	3760	4965	4676		STIMV 9Y 78 INTEPVAL	BED/H#3 SIZE	5	755	1911	1622	2233	2535	3149	3760	4065	4579	
CIPRUS 4 APR	DISTRIBUTIONS (NUMBFP/M*3-MM) SIZE CLOJD SIZE PR (MU) PROÐF (MU) P	1,715+05	2.25 - 104	4.196+03	1,435+03	•	• •	9	• •		• •	3.945-05	CIRRUS 4 APR	DISTRIBUTIONS (NUMBED/M#3-HM) SIZE CLOJO SIZE PR		1.145+05	3,545+03	1.435+03	•	• •		; ,:	; ,	::	2.34E-05 26
AFWL 278-16 ON Bull-Rose			4	67 87	108	94	169	249	25.5	271	311		AFWL E78-15 JN BULL-ROSE		2	26 4	67	100	9 4	169	502	3 E	271	311	
FLIGHT	PAPTICLE SIZE E SCATTER PROBE	4.48E+65	•	• •		:			;;	•	:	3.9i.k=08	FLIGHT	PARTICLE SIZE SCATTER PROBE		>.18E+06 0.				0. 2.26E+05		::		::	3.65E-07 16
	712 EXTZ (MU)	~	M	^ ~	œ <u>+</u>	12	4 4	\$	នន	23.53	25	CMC fe D D		P4	<u>;</u>	n in	10 K	în ș	15	3 :2	€0,6 ₹1 ₹	5 7.	8:	3≈	INC 4ED D
ERAGING :121U)	PRESS (MB) 647.90	ALT (KH))	FPT -30.0C	TAS (H/S)	149.44	2, 3, 904-06	FDR4 F1.18	(Fast/N) LN	5.1512E+02	TOTALS 2.786-05 40	eragivg 112:33	PRESS (MB) 64.7.96	ALT (KH)	3.61	Ť .12C	FPT -29.20	TAS (H/S)	156.14	Z 5.25E-06	FOR4 F2.07	F 6627 77 62	6.53 86E+02	TOTALS 6.36E-05 25
AFGL Second Averaging Tart: 17:12:03	ECIP ROBE	- T	•	-	FPT	TAS	•		• •	. C . C . C . C . C . C . C . C . C . C		TOTALS 0. 2.78E-05 40	AFGL Second Averaging Tart: 17112:33	PAESS SIP 64	ALT.		·•-	FPT	TAS	• •	2	FORM	•		10TALS 0 6.36E-05 0 25
r AFGL 30 SECOND STARTS	ECIP ROBE	7 T T			FPT	D. TAS	• •		• •	• •	•	•	9 2	PAESS SIP 64	ALT.	•••	+ -	FPT	O. TAS	• •	2	D. FOR4	• •	• •	•
CIGRUS STUDY BY AFGL 4 APR 76 30 SECOND INTERVAL START!	NUMBER/M*3-MM) PRES Size Precip (MU) Probe	ALT 0.	100 00 AUG	(6+64 4011 0• T	1622 U. FPT	223* 0. TAS	25 KM CO - 25 KM CO -	() () () () () () () () () ()	3470 3760 0.	4965 0.	4676 0	•	CIRPUS STUDY BY AFGL 4 APR 7¢ 30 SFCOND Intfrval Stapts	VE (NUMBEP/M®3-4H) /RESS 2)U STZE PRECIP 64	ALT ALT	•••	:+04 1011 0. T	FPT FPT	2233 0. TAS	2014 C	3149 0.	3750 0. FORM	- O 5000t	4576 0.	•
CIGRUS STUDY BY AFGL 4 APR 76 30 SECOND INTERVAL START!	NUMBER/M*3-MM) PRES Size Precip (MU) Probe	ALT 0.	7.542403 706 0.	1.43E+64 1011 0. T	E+03 1622 0. FPT	n. 2234 D. TAS	0. 2533 0.	00 00 00 00 00 00 00 00 00 00 00 00 00	3. 3454 0.	0. 4965 0.	3. 4676 0.	0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0	CIRPUS STUDY BY AFGL 4 APR 7¢ 30 SFCOND Intfrval Stapts	DISTOLGUTION (NUMBED/M+3-4H) SIZE CLOUD SIZE PRECIP 64 AMIN DEARE	ALT ALT	3.16:+05 437 0. 1.515+04 706 0.	1042E+04 1011 0. T	+93 1522 U. FPT	0. 2233 0. TAS	5. 2553 C. 2553 C. 25	3149 0 2 Z	3. 3750 0. FORM	7712 0 5004 0	10. 11.00 CC. 10.00 CC. 10	.367-05 0. 6. 25 0
TARUS STUDY BY AFGL 4 APR 76 30 SECOND INTERVAL START!	ECIP ROBE	26 5.75F+64 437 0.	47 7.542+03 706 0.	1.43E+64 1011 0. T	100 1-445+03 1622 U. FPT	148 n. 2234 D. TAS	0. 2533 0.		3. 3454 0.	271 0. 4965 0.	311 3. 4676 0.	0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0	9 2	SUTION (RUMBEP/M+3-4H) SRES CLOUD SIZE PRECIP 64 CORDE ANIX PORBE	ALT ALT	3.16:+05 437 0. 1.515+04 706 0.	67 1042E+04 1011 0. T	106 2.87:403 15.22 J. FPT	146 0. 2233 0. TAS	5. 2553 C. 2553 C. 25	239 0. 3149 0. Z	25n 3. 375g 0. FOR4	. 271 U. 4065 U.	441 Co 4540 Co.	.367-05 0. 6. 25 0

AVERĄGING 17†15f0]	PRESS (HB) 647.87 ALT (KH) T23C FPT -31.4C FAS (M/S) 149.86 Z 5.95£-05 FOR4 F .33 HT(4/M**3) 5.9795£*015
AFGL 3 SECOND AV START: 17	744 PRECITO 100 100 100 100 100 100 100 100 100 10
CTUDY 9Y AFGL 78 30 SECO INTERVAL STARTE	8667H+9 8126 8126 8126 8126 8126 8126 8126 8126
CIPRUS 4 APR	MUTTONS (NUM ROJE ROJE ROJE CLOUP) 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1
AFWI 178-16 JN BULL-ROSE	01STPT (MID)
FLIGHT TYPE :	PARTICLE SIZE DISTRIBUTIONS (NUMBER/H+3-HH) SCATTER SIZE CLOUN SIZE (HU) PROJE (HU) 5.00E+06 26 1 7 706 0 0. 57 0. 1316 0 0. 108 0. 1316 0 0. 128 0. 1522 0 0. 128 0. 2233 0 2.26E+05 169 0. 2233 0 0. 231 0. 2751 0 0. 271 0. 3761 0 0. 271 0. 4376 0 0. 271 0. 4576 0 0. 271 0. 4576 0 0. 271 0. 4676 0
	11 12 12 12 12 12 12 12 12 12 12 12 12 1
AVERAGING 17114(U)	PRESS (MB) 647.26 ALT (KM) 3.62 T -1.056 FPT -20.4C TAS (M/S) L51.83 Z 7.106-05 FOR9 F .35 NT(N/H**3) 1.30476+02
0 NO 1 %	PHH PRE PRE PRE PRE PRE PRE PRE PRE PRE PRE
OY S	(NUMBEZ/H+3-HH) SIZE (MU) (MU) (MU) (MU) (MU) (MU) (MU) (MU)
CIRRUS 4 APR	លំ១៩ ១ ១ ១
AFHL E78-16 JN BULL-ROJE	SISTAINUTION SIZE CLO (10) PRO CLO (40) CLO (47 3.49 (47 3.49 (47 3.49 (48 0.10) CLO (48 0.10) CLO (
FLIGHT S TYPE:	PARTICLE SIZE SCANTER PROBE 4.92E+u6 0.00000000000000000000000000000000000

PRESS (MB)	647.84		ALT (KH)	3,62		1 180		FPT -32.50		TAS (M/S)	169.28		2 9, 385-06		FORM F . 89		NT (4 / H++ 3)	2.13496+02	TOTALS	2.05E-05 27	
-HH	PRECIP	PROBE		5.54E-01												. 0				4.736-07	
UMBER/H#3-HH)	ST 7F	91		437	776	101	1316	1622	1927	2233	2538	1962	3149	3454	3763	4365	4373	4576			
ž		PROSE		3.65E+04	7.60: +03			2.68=+03	6			•		•	•		ċ	••		2,10E-05 27	
DISTPI	St 26	ŝ		56	4	29	87	108	1.28	146	169	1.89	543	33.0	250	271	291	311			
STICLE SIZE	SCATTER STZE GLOJD	PA085		1.25E+C7		•	•	0.	•	•		•		;	;	•	•	:		1.09E-07	
δď	317.	ĵ.		~	٣	r.	~	ው	11	77	÷	15	5.3	19	ፈ	23	55	22		TWC 4ED D	
PRESS (MB)	64.7.43		ALT (KH)	3.62		T72C		FPT -23.97		TAS (M/S)	150.96		2 1.825-06		FOR4 F1.11		(できまくと) しゃ	2.52901+02	TOTALS	1.24E-05 36	
_	PRECIP	PROBE		•				•	•	•			•	•	•			•			
ĩ	SIZE P			437 0	706 0	1011 0	1716 0	1622 3	1927 0					1454 0						0	
UTTONS (NUM9E	เรากา	240gc		2,67=+04	7.465+03	3.515+03	.5	1.435+03	.0	÷.	•	ċ	•	•		•	••	÷		1.245-05	
F141510	S1 2£	ŝ		92	4	67	87	178	128	148	169	189	289	233	251	271	291	311			
PIICLE SIZE	SCATIER SIZE GLO	PR08E		8.18F+06		•	•	•	•	ċ	•	•		;	;	;	•	•		7.05E-06	
ď	37 7 5	Ĵ		~	٣	٥	•	æ	11	7	14	70	\$	£	51	23	53	25		14C 450 0	

+.23E-05 2

INC 450 D

AFWL CIORUS STUDY BY AFGL FLIGHT E78-16 ON 4 APR 78 30 SECOVO AVERAGING TYPE: BULL-003E INTERVAL START: 17:14:33

101ALS 1. J3E-05 60

7.64E-07

TWC

1014LS 1.75E-05 57 ACML CTORUS STUDY BY AFGL FLIGHT E78-16 GN 4 APQ 78 3C SECOND AVERAGING TYPE: BULL-POSE INTEFVAL START: 17:15:33

FLIGHT E78-16 IN 4 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START! 17119103 AFML CIRRUS STUDY BY AFGL
FLIGHT E78-16 ON 4 APR 78 30 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL STARTE 17116643

PRESS (MB)	646.94		ALT CKW	3,63		376°- 1	?	FPT -31.80		135 (H/S)	151.56		Z 4. 64E-05		FORM F1.65		NT (N/Mets)	5.87672+01	TOTALS 2, 735-05	52	averagivg 17:19:38
îx	PRECIP	PRUBE		3.61c+00			•		•	.0	÷	ć		0.		•		•	3.256-06	191	Ž
RFF/H+3	STZE	(10)		437	706	1711	. 16	1622	1927	2231	2538	2943	3149	3454	3760	4065	61.5	4675			STUNY BY AFGL 78 30 SECONI INTERVAL START:
PARTICLE SIZE DISTRIBUTIONS (AUMRFF/H#3-HM)	SLOJO	2R03E		1.425+05	3.	ټ. ت	ť	2.64=+03	ė	:	•	•	•	•	•	•	•	;	50-305-2	. 3	AFWL CIPRUS STHIN BY AFGL 176-16 JN 4 APR 76 30 °ECC BULL-ROSE INTERVAL START
E DISTRI	SIZE	25		92	۲,	67	47	160	128	149	691	1.89	203	230	250	271	291	311			178-16 9011-805
RICLE SIZ	SCATTER	rross		8.27E+05	ė	•	2.235+05	2.235.05	•	÷	2.24E+05	•	:	÷	:	:	;	:	3.696-07	3 .	FLIGHT TYPE 1
PA	3175	(HC)		N	m	ın	~	~	11	21	*	ç7	1.6	19	21	23	52	23	I HC	16.0 0	
PRESS (MB)	96 • 949		ALT (KH)	3.63		7 - •68C		FPT -31.20		TAS (M/S)	151,90		Z 8. 37E-06		FOR4 F . 82		(Par K/ア) LY	1.71 45E+U2	TOTALS 1.636-05	38	4461NG 1013)
=	PRECIP	¥																			
ŧ	œ œ	PROBE		5.455-41		•	•	•	•	•	•	3.		•	•		•	•	4.66E-07	191	AFGL SECOND AVEN TARTS 1721
4ER/ 443-14	ST ZE PR			ę,	706 0.	1011 0.	1316 0.	1622 0.	1927 0.	2233 0.	2538 0.	2843 3.	3149 0.	3454 3.	3760 0.	4365 3.	4479 0.	4576 0.	4.665-07	191	TUDY BY AFGL 30 SECOND AVER FRVAL STARTS 1711
(NUMBER/M#3-F	۵	(A)		ę,		6.995+03 1011 0.		1.425+A3 1622 0.	0. 1927 0.	U. 2233 0.	D. 2538 D.	P. 2843 3.	A. 3149 B.	3454 3.	0. 3760 0.	ስ. 4365 3.	0. 4779 0.	6. 4576 6.	ř.	191	L CIRPUS STUDY SY AFGL 4 APR 70 30 SECOND AVERAGING 1MTERVAL STARTS 1711013)
(NUMBER/M#3-F	STZE	160% (Mn)		5 424 50		93	•	<u>,</u>	å	å	ຣໍ	ċ	ŋ•	•	•	•	•	•		**************************************	AFWL CI E78-16 3W 4 BULL-905E
2E DISTPIBUTIONS (NUMBER/M#3-#	CLOUD STZE P	(AL) 360% (AL)		5 424 50		93	•	\$.42E+83	å	å	ຣໍ	ċ	ŋ•	•	•	•	•	•	ř.	1551 55	AFUL CIRPUS STUDY 97 AFGL FLIGHT E78-16 JN 4 APR 7E 38 SECOND AVER TYPE: BULL-903E INTERVAL START: 17:

DDEL CAR	66.949		ALT (KM)	2,63	}	7 4.850		FPT -32.00		TAS CH/S)	151.84		2 1. 32E-05		FORY FILLIS		NT CN / N + + 3.	7.23 93 E+01	1011LS 1.83E-05
(XX)	PRECIP	PROBE		1.095+00					•		•					•	•	•	9.23E-87
HR FR/Men	SIZE PR	(24)						1622	1927	2233	2538	2643	6412	454	1760	4665	4.70	4576	
JTTONS CH	0000	JRORE		1,140 005		3.535+03	,	•	,		•			,	•	٥.		•	1.73:-05
DISTRIBL	SIZE CLOJO	ŝ		5 9	74	67	67	108	128	14.8	169	189	209	230	250	271	162	311	
ARTICLE SIZE	SCATTER	PROBE		7.58E+46	ò	•	•	2.246+05	;	;	÷	ċ	ċ	•		•	•	•	2,316-07
2	:215	Ŝ		۸,	P ")	5	~	•	=	72	÷	9	13	43	ಸ	23	\$2	22	THC TED D
PRESS (MB)	647.25		ALT (KH)	3, 52		1530		FPT -31.10		TAS (H/S)	150.86		Z 5.12E-05	•	FORM F .21	:	いりゅうエンアンレス	10 44 76E402	707ALS 9, 67E-96 45
	PRECIP 647.25	, ;		4.38E+80 3,52	•	0. 1 530	•0	4. FPT -31.1C	•		0. 150.86	• 0	0. 7 5.12E-05	,	D. FORM F .21	:	(の *** *** *** *** *** *** *** *** *** *	0. A. 44 76 E. 402	
		PROBE	144	4 - 38E+00	•	-	•	522 0. FPT -31.1C	•	a. TAS	• 0	ė	ċ	•		•	•	•	TOTALS 3.746-06 9.476-96 191 65
(NUMBER/ Nº3-MA)	D SIZE PRECIP	F (MU) PROBE	144	4 - 38E+00	706 D.	+03 1011 0.	1316 0.	•	1927 0.	2233 Q. TAS	2538 0.	2843 0.	3149 0.	3454 0.	4764 00.	10 KPP1	6470 0.	4576 0.	101ALS 9. 67E-96
(NUMBER/ Nº3-MA)	D SIZE PRECIP	F (MU) PROBE	144	4 - 38E+00	706 D.	7.UFF+03 1011 0. T	1. 1316 G.	122 0.	0. 1927 0.	9. 2233 Q. TAS	U. 2538 0.	0. 2843 0.	0. 3149 0.	3454 0	D. 4769 D.	C. 1983 C.	Q* 04.50 0.	0. 4576 0.	707ALS -06 3.74£-06 9.47E-06 2 191 65
(NUMBER/ Nº3-MA)	SIZE PRECIP	F (MU) PROBE	114	4 - 38E+00	706 D.	7.UFF+03 1011 0. T	87 1, 1316 0.	0. 522 6.	128 0. 1927 0.	146 9. 2233 9. TAS	169 G. 2538 G.	189 0. 2843 0.	209 0. 3149 0.	234 0. 3454 0.	D. 4769 D.	C. 1983 C.	Q* 04.50 0.	0. 4576 0.	707ALS -06 3.74£-06 9.47E-06 2 191 65

A PROPOSITION OF THE PROPOSITION

AFML CIPRUS STUDY BY AFGL FLIGHT E78-16 JN 4 APR 79 3D SECOND AVERAGING TYPE: BULL-ROSE 'INTEFWAL START: 17:17:03
AFML CIRRUS STUDY 97 AFGL FLIGHT E78-16 JN 4 APR 78 30 SECOND AVERAGING TYPE: BULL-ADSE INTERVAL START: 17:115:00

	647.27		AL I (XP)	20 °C	716.4	3	FPT -32.4C		TAS (M/S)	200	126611	7 1. 606-06	(A-10/ 10 1	SOOM E4.45	****	12 4 6 M / L V	6.71 32E+01	
4	PRECIF	PROBE	2 41 5 10 0								•							2,32£-06 191
***********	SIZE	SE)			1311	1716	1622	1927	7233	0 K 3 K	200	6418	3635	1763	1963	7470	4576	
147 24077 141	SIZE GLOUD SIZE PR	PROBE	1.785405				4.25" +n3	•	•	•	•	ď	•					1.45° - 05
a ratsia	SIZE	ê	96	t i	67	87	106	128	148	169	1 69	209	230	255	271	291	311	
INTELE STEE	SCATTER	PROBE	5.795+05			ċ	•	÷	•	•	•	:	•	•	•	<i>:</i> :	:	5. J5E-08
2	37 15		~	m	ŧſ	~	æ	11	1	*	16	13	13	27	23	ç2	27	INC VED 0
PRESS (MB)	647.80	ÀL.T (KW)	3,62		T000		FPT -32,30		TAS (H/S)	150.61		2, 2, 24E-05		FOR4 F .50	-	(の・ボノア) にん	5.6367E+02	707ALS 3.01E-05
(HH)	PRECIP	18085	• 64E+00															1.40E-06 191
Ë			4	ö	ċ	ė	6	;	6	ċ	ċ	;		•	•	:	;	04.1
HBER/H	STZE		-	706 6.	1011 0.	1316 0.	1622 0.	1927 0.	2233 9.	2538 0.	2943 3.	3149 0.	3454 9.	1763 0.	4365 3.	4370 O.	4676 4.	4.00
MUMBE		5	1 424 10		03	1316 0.	2	0. 1927 0.	d. 2233 B.	0. 2538 0.	0. 2943 0.	0. 3149 0.	J. 3484 D.	0. 3763 0.	0. 4365 0.	t. 4370 0.	0. 4676 4.	2.875-05 1.40 32 1.40
JISTOLGUTIONS (NUMBER/HP)		5	1 424 10	# 3	03	•	2.565.403	•	•	•	å	•	230 7. 3454 5.	•	•	ۮ	•	
ATICLE SIZE JISTPIBUTIONS (NUMBER/HP)	SCATTER SIZE CLOUD SIZE	5	1 424 10	# 3	03	•	2.565.403	128 0.	•	169 0.	189	•	٠	•	•	ۮ	•	

PRESS (M8) 646.91	ALT (KH) 3.63	J64*- 1	FPT -31.90	TAS (H/S)	7 3.835.05	FOR4 F .86	NT (N /H++3) 7-19 56E+01	TOTALS . 2. 36E-05
S-MN) PRECIF PROBE	3.26E+0.	• • ·	• • •	• • •			•••	2.78E-06 191
BER/N® SIZE (40)	437	1011	1522	2233	7 M 45 3	3760	4379	
SATICLE SIZE DISTRIGUTIONS (NUMBER/N+3-MM) SIZE CLOUN SIZE PRORE (4U) PROSE (4U)	1.415+05	3.49E+03				60,	• • •	2-08F-05
DISTRI SIZE (4U)	92	\$ 6	108	4	200	230	311	
PTICLE SIZE SCATTER PRORE	3.78E+00					• • •	•••	5.046=08
\$175 (40)	₩ ₩	, ru 🛩	7 #	27.7	33	5 2 2	388	THC MEG O
PRESS (MB) 647.58	ALT (KH) 3.62	1 .070	FPT -32.0C	TAS (H/S)	Z 1. 50E-05	FOR4 F . 91	NJ (N/N==3) 5.6329E+01	101ALS 1. 42E-05 27
ROBE	1.145.00 ALI (KH)	1 .070	0. FPT -32.0C		0 . Z 1. 50E-05	0. FOR4 F .91	0. NJ (N / MP#3) 0. 5.6329E+01	1014LS 9.36L-07 1.42E-09 191 27
ROBE	1.146.00		9.	0. TAS	50	3454 D. FOR4 F. 91		
(NUMBER/H+3-HH) STZE PRECIP (MU) PROBE	1.146.00	1316 00	855+03 1622 G. FP	0. TAS	3249	•••		
(NUMBER/H+3-HH) SIZE PRECIP (MU) PROBE	+04 437 1.1vE+60	20 12 12 12 12 12 12 12 12 12 12 12 12 12	2.65F.+03 1622 0. FP	0. 2883 0. TAS	0. 2345 G.	•••	0. 6370 0. 0. 6576 0.	E-65 9.36E-07 27 191
ROBE	+04 437 1.1vE+60	20 12 12 12 12 12 12 12 12 12 12 12 12 12	2.65F.+03 1622 0. FP	0. 2883 0. TAS	0. 2345 G.		0. 6370 0. 0. 6576 0.	E-65 9.36E-07 27 191

A SOUTH THE SECOND SECO

AFML CIRRUS STUDY BY AFGL FLIGHT 278-16 ON & APR 76 IN SECOND AVERAGING TYPE: BULL-403E INTEPVAL START: 1714633

ATHL CIRRUS STUDY BY AFGL
FLIGHF E78-16 JN 4 APR 78 3C SECOND AVERAGING
IMPER BULL-ROSE INTERVAL START: 17117130

AVERAGING 17856163	PRESS (MB) 317,14 ALT (KM)	7,	•	TAS (H/S)	2 0.	FORM FC. 00	MT (4 /H••3) 0.	TOTALS 0.0	AVERAGING 17156130	31	ALT (KN) 8.52	T - 42.22C	EPT -45,70	TAS (H/S)	2 0.	FORY FG. OU	NT (4 / H** 3)	TOTALS 0.0
Y AFGL 30 SECOND STARTE	F PRECIP		060		000		900	•	BY AFGL 30 SECOND L STARTI	*3-##) E PRECIP) PROBL	.0	96			-00	Ø 5 6	, , , ,	•
CIPRUS STUDY B 4 APR 78 INTERVAL	86 HUX	437 736 135	100	224	or at t	50 CC 60	647 647	c	CTODUS STUDY 4 APR 78 INTERVA	IS (NUMBFR/Nº3- NO SIZE IRE (MU)	£.1	13.1	# 00 C	200	3333	10 to 10 to	4005 4470 4575	•
AFWL C1 E78-15 JN 4 Bull-R0SE	RIBUTIONS (966					, å ö	;	AFWL CT E78-16 JN 4 BULL-ROSE	DISTRI JUTTONS (SIZE SLOUD (1U) PROFE	6		., 0			 		•
	20,0	9 7 6 7 6 7					56.₽ ₽	ı,	H 678-1				# G	9 9	2 2		291 311	10
FLIGHT	PARTICLE SIZE SCATTER PROBE	1.64E+N9 3.55E+07 0.	66.	• • •			:::	1.636-05	FLIGHT	PAKTICLE SIZE SCATTER PROSE	1.52E+0	3.18E+07	.			•••		1,50E-05
	31.7E (149)	W 60 IV	~ ₩•	121	: 4 5	225	233	INS 460 0		312E	~	w fv	٠n;	141	125	F 7 6	3 % %	180 450 0
								KO 10		200	<u>- 5</u>	ပ္	Q	2.5			~ ~	287
RAGING 5518)	PRESS (M8) 325,01 ALT (KH)	9	Fot -44.60	TAS (H/S)	2 1.516-03	FOR4 F .91	NT(Y/M*#3) 2.4667E+00	TOTALS 2.89E-05 301	RAGING ISS133	ES S	AL 7 (KN)	1 -41.210	FPT -44.60	TAS (M/S)	2 2. 78E-04	FORM F . 91	MT(4/H##3) 4.5436E-01	TOTALS 5, 33E+86
AFGL D SECOND AVERAGING START: 17:55:03	PRESS 32 ALT	9	Fol -4	TAS	5 1 5	FOR4 F	0. NT(4/Mas)	TOTAL 2.89E-05 2.89E-0 301 301	AFGL R Second Averaging Start 17155131	PRES	.27E-01	.01E+00 1 -41	FPT	\$VL	2.7	FORM F	• • •	TOTAL 5.33E-46 5.33E-1 301 381
STUDY 9Y AFGL 78 30 SECOND INTFRVAL START:	PRESS 32 ALT	41E+00 49E+00 T -40	For For	TAS	S+1 2	0. FOR4 F		.89E-05 2.	STUDY AY AFGL 78 37 SECOND NIERVAL STARTE	PRES	6.27E-01	1.01E+00 0. 1 -41		1AS	2 2.7	n. FORM F	•••	.33E-46 5. 301
GIRRUS STUDY BY AFGL 4 APR 76 30 SECOND INTERVAL START:	GLOUD SIZE PRECIP 32 PROSE (HU) PROBE ALT	3.41E+00 5.49E+00 0.	1316 0. 1622 0. Fot -4	2233 0. TAS	S • E 2 • C 6748	State 0 . FOR4 F		.89E-05 2.	CIARUS STUDY BY AFGL 4 APR 78 37 SECOND INTERNAL STARTE	NUTIONS (NUMBER/Me3-MM) SLOJO STZE PRECIP PROPE (NU) PROBE	437 6.27E-01	756 1.01E+00 1311 0. 1 -41	1715 0. 1522 0. FPT	NAME OF TAS	0. 2 2.7	SAND O. FORM F		.33E-46 5. 301
AFWL CIRRUS STUDY BY AFCL E78-16 ON 4 APR 76 30 SECOND BJLL-ROSE INFRVAL START1	ODSTRIBUTIONS (NUMBER/N+3-NH) SLZE CLOUD SIZE PRECIP 32 (4U) PROBE (HU) PROBE ALT	137 3.41E+00 706 5.49E+00 1711 0. T -40	1316 0. 1652 0. FPT -4	2. 2.2.3.3 U. TAS	2 10 64 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0. 3769 0. FOR4 F	20 CA100 CO CO CO CO CO CO CO CO CO CO CO CO CO	2.89E-45 2.	AFML CIRRUS STUDY BY AFGL E78-15 IN 4 APR 78 37 SECOND BJLL-DOJE INTERNAL STARTI	E DISTRÍBUTIONS (NUMBER/M#3-MM) SIZE DLOJO STZE PRECIP (4U) PROBE (MU) PROBE	26 0, 437 6.27E-01	47 0. 756 1.01E+U0 67 3. 1311 0. 1 -41	10. 14415 do. FPT	C. CAM D. TAN	3149 0. 2 2.7	C. SAVE C. FORM F	200 CC	5.33E-46 5.
GIRRUS STUDY BY AFGL 4 APR 76 30 SECOND INTERVAL START:	E OISTRIGUE (NUMBER/N°3-MH) PRESS SIZE GLOUD SIZE PRECIP 32 (4U) PRO9E (MU) PROBE ALT	0. 437 3.41E+80 0. 706 5.49E+00 0. 1811 0. T -40	87 U. 1316 U. FDT -4	149 0. 2533 0. TAS	2 0 6418 0 0 6418 0 0 0 501 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	250 0. 3454 0. FOR4 F	311 0. 6576 0.	2.89E-45 2.	CIARUS STUDY BY AFGL 4 APR 78 37 SECOND INTERNAL STARTE	SISTRIBUTIONS (NUMBER/Me3-MM) SIZE SLOJO SIZE PRECIP (4U) PROPE (NU) PROBE	26 0, 437 6.27E-01	0. 756 1.01E+00 3. 1311 0. 1 -41	100 0 1415 0 FPT	140 de 2003 de 1AS	199 0. 200. 0. 2. 2. 7. 114.9 0. 2 2. 7. 114.9 0. 2 2. 7. 114.9 0. 2 2. 7. 114.9 0.	COU CO CARSE D. FORM F.	200 CC	5.33E-46 5.

INTERNITORING AND CONTROL OF THE CON

FLIGHT E78-16 14 G APR 76 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 17:57:03

AFWL CIRRUS STUDY 97 AFGL 17PE: BULL-ROSE APR 78 30 SECOND AVERAGING 17PE: BULL-ROSE INTERVAL START! 1750103

PRESS (HB) 311.76	ALT (KH) 6.90	1 -42,510	FPT -44.10	127 (H/S)	2 8.93E-05	FORY F1.03	NT (1/H++3) 1.73 86E+00	TOTALS 6. 64£-06 191	AVERAGING 17 155833
-H4) PRECIP PROBE	7.77.404	•••	666	• • • •		•••		5.64E-36 191	2
(WUMPER/N#3 SIZE (YU)	437	1311	1522		3149	3763 4965	4575		IS STUDY BY AFGL R 76 TO SECO INTERVAL STARTE
TTU TIONS SLOUD PRORE	:.:	ತೆ ತೆ		;:		THE CTPRU
E DISTRI SIZE (MU)	1 2	67	128	198	239	271	311		E78-16 BULL-RC
PARIECE SIZE DISTRIPUTIONS (WUMPER/W#3-HM) SCATTER SIZE PROSE PROSE (MU) PRORF (MU) PI	1.60E+09	90			• • •		••	1.54E~05	FLIUHT
SI ZE (MU)	~ ~	€ .	F 1 2	139	22:	325	S &	1 NC 4:00	
SS	6.66	T -42.283	TAS (M/S)	124.52	40 Z	20 40 27 27 27	0.	TOTALS 0.	AVERAGING 17 157 133
PROBE		:::	• • •	• • •			•		ON O
(NUMBER/M*3-MM) SI 3E MA()	437	404 1316	1927	2553 2553 2553 2553 2553 2553 2553 2553	3454	4365	9 4 6 7		STUDY 8
C W		e 0 6				6	6		JU CIRRUS
SIZE GLOU (MU) ORDB	56	, 0 00 ±	883	4 4 6 6 6 6 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	230	271 291	311		ACUL CIRRUS FLIGHT E78-16 ON 4 APR IYPE: BULL-ROSE
PARTICLE SIZE Suatter Probe	1.53E+09 3.13E+07			•••	. ·	• •	•	1.516-05	FLIGHT 1YPE1
31 25 (HU)	n: m i	~~~	= 2	<u> </u>	6.2	223	۲,	IKC IID 9	

AFML CTPRUS STUDY 9Y AFGL Fliwh E78-16 7N 4 APR 78 70 SFCOND AVERAGING TYPE1 BULL-ROSE 1 INTERVAL STARTE 17158139	
AFUL CIRRUS STUDY BY AFGL FLIGHT E78-16 ON 4 APR 76 30 SECOND AVERAGING TYPE: BULL-ROSE INTEDVAL START: 17:57:33	

PRESS (MB) 310.15	ALT (KH)		145.450	FPT -42,90	TAS (M/S)	127:21	2 1. 794-04	FORY F .36		NT (X / X**3)	4. 13 66E+02	TOTALS 5.02E-05Ç
S-MM) PRECIP PROBE	1 - 305 - 01		• •	•	•••	•		• •		•	•	1.11E-05 191
PBER/HE	637	766						3760	4065	0254	4576	
SUTIONS END GLOUD PROSE	ċ	8.912.443	20+364.2	1.765463	9.875+02	1. 6.79E+02	9+595+02	: 6	•	•	•	3.915-05 67
DISTRI SIZE (1U)	26	£ 4 9	6	901	97	169 189	203	25.5	, , , , , , , , , , , , , , , , , , ,	16.2	4	
PARTICLE SIZE DISTRIBUTIONS (NUMBER/MM35-MM) SCATTER SIZE DROUD SIZE PR PROBE (1U) PROBE (MU) P	1.67.	5.26E+07 5.32E+05	1.06E+0b	2. *1E+45	0	Z. 65E+05 7.96E+05	•				•	2,165-05
(0H)	N	en ru	~ 0	, 1	앜.	44	<u> </u>	ដែ	S 10	;;	j	THC FD 0
												•
PRESS (MB) 313.13	4LT (KH)	T -42.42C	COT -46.67	70.65	TAS (H/S)	•	.0 2	FORY FU. 00	27 CC / 18 8 2)	0	•	TOTALS 0.
ECIP ROPE	•	0 . T -42.42C	0.000	00		•	*D 7	D. FORY FU.00	0.	.0	•	-
ECIP ROPE		1011 0. T -42.42C	• •		D. TAS		• •	•	•			-
ECIP ROPE	437 0.	-	4 4 4 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1927 0	2233 D. TAS	00000000000000000000000000000000000000	ים אולים אולים מיי	3760 0.	000000	4576 0.		-
ECIP ROPE	0. 457 0.	A TO SO THE TO S	3. Land 10.	9. 1927 0.	J. 2233 0. TAS		2 - D - P - D - P - D - P - D - P - D - P - D - P - D - D	3760 0.	40 Okhid	0. 4576 0.		-
	0. 457 0.	F	100 CC CC CC CC CC CC CC CC CC CC CC CC C	128 p. 1927 0.	146 3. 2233 0. TAS		2	250 0. 3760 0. 271 0. cake n.	162	311 0. 4576 0.		-

AVERĀĢING 1810 <u>d</u> ioj	PRESS (MB) 307.25	ALT (KM)	5	1 -43.270	FPT -42.30		124,45	•	7 7. 695-04	FOR4 F .57		(N++W/7) LY		701ALS 2.57E-04 61	AVERALING 18:00:33	PRESS (MB) 347.05	ALT (KH)	30 * F	T -43.60C	FPT -42.50	TAS (H/S)	124.	Z 1.87F-03	FOR4 F .29		NJ (4/M**3) 1.8995E+03	707ALS 2.83E-84 328
Y AFGL 30 SECOND Starti	3-4M) PRECTO			~		٠.			7 (0	• •	•	•	AFGL P SECOND START!	7-44) PRECIF		5.294-01	•	. C) C			. 0		0	00	9.85E-05 192
STUDY 79 KTEPVA	(NUMBERZH#3 SIZE (MU)											6470			STIJRY 9 73 NTERVAL	32 IS 37 IS		705	101	1522	1967	2539	3140	3760	4065	4379	
CIFRUS 4 APP	CLOUR CLOUR		1.37:+05	1,715+04	1.385+04	1.16"+04	50 + 185 · 5	1.615+37	9.81:+32	1.205.403		٠.	;	2.575-64	CICOUS	UNTONS (NU GLOUD SROIF	!	7.302+04	4.282+93	9.	1.915+03	1.671.03	9.836+62	4.51° + 53° 0	3	1.50:+03	1.85=04
AFNL F78-16 ON BULL-ROSE	SIZE		ę,	67	700	128	E 9 -	1.49	6 . 6	250	271	291	:		AFHL 18-16 JN BULL-003E	91ST&I S1 ZF		0 ~	67	108	9 49	169	6	250	271	311	
FLIGAT TYPE 8	RIICLE SIZ SCAITER PROBE		4.668+07	2.738+05	3.045+06	1.366+06	5.17E+05	9.16E+05	8.19E+15	5.466+03	5.46E+U5	19E+u6 5.46E+35		3.07E-05	FLIGHT	ARTICLE SIZE SCATTER PROBE	004074	4. 10E+07	1.636+06	1.092.06	5.466.05	5.42E+05	2.716.05	9.42E+05	5.412+05	5.42E+05	3.25E*05 18
	51 75 (MU)	•	u m	w r	· m	멸:	2 5	54	9	2.7	3	52	ì	TW3 4E0 0		31.7E		. pr	r ~	· m ;	12	3.	139	25	23	2.2	I MO
RAGING 59101	PRESS (MB) 309.87	ALT CKHO		T -42,460	FPT -42.20		126,91	1	2 7. 998-05	FORM F .33		(の4をおくす) LV (の4を) (の4を) (の4を) (の2) (の2) (の2) (の2) (の2) (の2) (の2) (の2)		70TALS 5.60E-05 54	raging 59133	PRESS (M8) 348.05	ALT (KH)		1 -42.870	FPT -42.10	TAS (H/S)	*	2 2.12E-04	FOR4 F . 59		NT (N / Mee 3)	TOTALS 2. 69E-04 70
AFGL Second Averaging Start: 17159103	P4ESS ECIP 30	AL 7	201	-	FPT		S 4 -		. 27.	FORY	•	0 - VI (4/X/X/40)	•	•	AFGL Second Averaging Start: 17159133	PRESS ECIP 34	ALT ALT	366 + 00	24- 1	FPT	TAS	~1		FOR4 F		_	1.13E-06 2.09E-04 191 70
AFGL O SECOND STARTS	P4ESS ECIP 30	AL 7	0.505.00		S. FPT	•			9. 2 7.	 FOR4 F			•	.45E-06 5.	9y AFGL 30 Second Al Starts	PRESS PRESS SUPPOSE	ALT ALT	1 · 36 · 400	0. 1 -42	FPT	J. TAS	•	7	0. FOR4 F	2.	••	.13E-06 2. 191
CIRRUS STUDY BY AFGL 4 APR 78 30 SECOND INTERVAL STARTS	(NUMBFR/M+3-M+) PRESS SIZE PRESIP 30 (4U) PROBE	ALT CONTACT	.365+04 706 0.	1011 0 1111	39:403 1622 J. FPT	1927 0.	1	0 50	3149 0. 2 7.	376.1 D. FORM F	4365 3.	• •		.45E-06 5.	CIROUS STIDY BY AFG. 4 APR 78 30 SECOND INTERVAL START!	S (NUMBER/HW3-MM) PRESS 3.0 STZE PRECIP 3.0 STZE PRECIP 3.0 STZE PROBE STZE STZE STZE STZE STZE STZE STZE STZ	ALT	:+05 7.6 0.	7+03 1311 0. T -42	Fd4	1+04 2233 0. TAS	14-53 WAVE 0.	2	STEE D. FORLF	4069 3.	••	.13E-06 2. 191
CIRRUS STUDY BY AFGL 4 APR 78 30 SECOND INTERVAL STARTS	DISTRIBUTIONS (NUMBER/N#3-M4) SIZE GLOJO SIZE PRECIP 30 (4U) PROBE	ALT COLLAR	5.362+04 706 0.	1041 0 T	1,39:403 1622 3. FPT	28 0. 1927 0.	40 20-40 660 20-40 660 660 660 660 660 660 660 660 660 6	20 29 20 0	3149 0 2 2 7	376 0. 376 0. FORM F	71 4365 3.	4470 00 CANAC		.16:-05 4.45E-06 5.	TRPUS STUDY AY AFGL 4 Apr 78 30 Second Infraal Starte	DISTATUTION: (NUMBER/N#3-MH) PRESS SI7E 710JD 971Z- BRECIP 3L (HU) PROPE (MI) PROPE	ALT	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	7.641403 1311 0. T -42	144 4.00 5.25 4.00 110.	48 1.41.404 2233 J. TAS	SOU SOUGHOUS OF SOUTH SO	2 0 0 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	30 0. 3751 0. FOR4 F	71 00 4065 30	11 0. 4574 9.	.875-64 1.135-06 2.
CIRRUS STUDY BY AFGL 4 APR 78 30 SECOND INTEFVAL STARTS	STRIBUTIONS (NUMBER/N•3-H4) 125 GLOJO SIZE PRECIP 30 101 PROBE (4U) PROBE	ALT CONFLAC	5.362+04 706 0.	67 0.0 100. 101. 0. T	109 1,395+n3 1622 J. FPT	128 0. 1927 0.	140 700 400 CECO TO TAN	20 29 20 0	. 209 0. 3149 0. 2.7.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	271 4365 0.	931 7. 4477 6. 11 0. 4576 7.		.16:-05 4.45E-06 5.	IFML CIRPUS STUDY 9Y AFGL IN 4 APR 7A 30 SECOND 13E INTERVAL START!	JUTION: (NUMREC/N#3-MH) PRESS JLOJN SIZŁ PRECIP JL JRANI PROGE	ALT	12E+07 47 1.76:405 7u6 0.	586+06 67 4.24:+03 1311 0. [-42 138+05 87 7.64:+03 44:4 0.	10 C C C C C C C C C C C C C C C C C C C	90E+06 148 1.417+04 2233 3. 1AS	120F+05 169 55-805-93 75543 0	N TO THE TOTAL TOT	15E+US 250 0. 3751 0. FOR4 F	08E+06 271 i.e. 4065 J.	7.E+V6 291 U. 4370 U. 89E+V0 311 U. 4574 A.	.875-64 1.135-06 2.

AVERAGIYG 18 10 2703	PRESS (MB)	ALT (KM)	1 - 63.460			TAS (H/S)		2 1. 496-05	FOR4 F1.40	***************************************	2. 43 SC F-01	1014LS 1.11f-06 191	avlraging 16102173	77° 21° 40	AL T CKHI		1 -43.756	FPT -44.70	146	128.02	2 5, 946-05		1044 F1.00	1.19 57£+00	TOTALS 4, 41E-06 191
HY AFGL 30 SECOND AV AL STARTE 16	P3+MM)	7 1.296+00	• • •	• •		00	9		٠.	• ·	۵,	1.118-06	Y AFGL SA SECO40 STARTS	S-MM)	3004	u c	2 13		0 -		~ *	~	, 0	6.6	4.41E-06 191
CIPRUS STUDY 4 APR 76 INTERV	SECULI SECTIONS (NUMBER/MOS)	E. #				2933				963	K-0.7	c	CTPQUS STUDY 3 4 APK 70 INTERVAL	SIZE CHUI SOUND STREEN PROPERTY PARTY 3603	200.7	101	1316	1927	1 C	24.50 24.50 24.50	3636	8964	4377	e	
AFWL E78-16 JN PULL-R93E	DISTRIGUT SIZE	9	~ ~	604		143 159 0.		23.1		271		ů C	A FN L F78-16 7N PUL -503E			26	9			591	209	Ç.		291 J.	ć
FLIGHT	PARTICLE SITE E SCATTER PROBE							• • •	_			1.946-05	FLISH	SAKTICLE SITT				• •					• ~		\$.226-05 0 2
	3125			~	=	21	*:	3 3	₹.		. ?.	14 14 14		315		~ ~	יניטי		7		9 40	22	:::	23	227
AVERAGING 18:01:03	PRESS (HR) 306,75	ALT (KH) 9.01	T - 43.79C	FPT - 43,10		TAS (H/S) 125.09		•0 7	FOR4 FL.CO	NF IN /Hee 3)	• •	101ALS 0,	AVERAGING 1810113)	PNE3S (Mn) 306.41	AL 1 (KH)	9.02	T -43.61C	FPT -43.70	TAS (H/S)	15 6. 01	۲ 0،	SOUTH TO THE		00 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	101ALS 0.0
Y AFGL 30 SECOND AVERAGING Start: 18:01:01	PAECTP PAECS	ALT ALT		0. 4.4		0. TAS 0. 1		7		• •		TOTAL	7 AFGL 30 SECOND ANERAGING START: 1810113)	PRESS	AL 1	• •	· -	. FPT	J. TAS 1H/	166.		* O		••	
AY AFGL 30 SECUND IL START!	(4) 443-HH) PRESS 3 (4) PRESS 4 (4) PRESS	ALT ALT		0. 4.4		. TAS		7		• •		, ; ; ; , v	CTULY 3Y AFGL 78 30 SECOND 4TFFVAL START!	(NUMPEL/Me3-MM) PRECIS SO (NUMPEL/Me3-MM) PRECIS SO (MM)	AL 1	• •	· -	. FPT	J. TAS 1H/	166.		* O			ة د د
CIARUS STUDY AY AFGL 4 APR 78 30 SECUND IMFERVAL STARTI	(4U ⁴ 9EK/4+3-MH) P46SS 0 S12E P8ECIP 3 F (4U) P40BE	L37 3.	0. 1018 G. T.	0. 1315 0. 0. 1622 u. FPT	1027	0. TAS 0. 1	0. Name of the contract of the	7 •0 mars •0 •0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	D. 1765 C. C. 1765 C. C. 1770	3. 4576 0.	T01AL	GIDDUS CTURY BY AFGL 4 APT 78 30 SECOND 14 TYFFVAL STARTI	TET TUTTONS (NUMBEL/MES-MM) TO GLOUD (17F COULD STEE DARELT SO 30 213 AND POORE (WW)	N. 1	0. fram 0.	2. 1011 0. T	7. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15	7. 2804 0. TAS II.	2533 0. 126.	2 •0 6982 •3	20 00 00 00 00 00 00 00 00 00 00 00 00 0	4065	4576 0.	ة د د
APR 78 30 SECUND APR 78 30 SECUND INTERVAL START1	(VUMGEK/4*3-MH) PRESS SIZE PRECIP 3 F (AU) PROBE	26 9. L37 3.		0. 1315 0. 0. 1622 u. FPT	126 0 1201	. 146 J. 2233 D. TAS . 160 D. 2474 D. 1		7 •0 mars •0 •0	00 00000	D. 1765 C. C. 1765 C. C. 1770	311 30 4576 00	101AL	FAL CIUDUS STUFY BY AFGL JA 4 APT 78 30 SECOND SE 4 INTERVAL START1	TUTTONS (NUMBEL/MB3-MM) GLOUD (175 PRECIP SO SEQUE (MU) PRECIP SO	N.1	26 5. Fay 5.	67 9. 3031 9. 7	7. 15. 15. 15. 15. 15. 15. 15. 15. 15. 15	71 SW1 00 1251 00 1751 175 175 175 175 175 175 175 175 17	169 0. 2539 0. 166.	25.9 % 324.9 0.	20 00 00 00 00 00 00 00 00 00 00 00 00 0	271 0. 4065 0.	0. 7. 4676 0.	6 3 *?

erromental services considerates and an experience of the services of the serv

271240174	1610,3107
r ay AFGL	4 AP4 75 SECOND FILENCES IN TATEPORT START 1810,340)
CIPRUS CTUDY	4 AP4 75 INTEP
ACHL	FLICHT 578-16 OV
	FLICHT

AFML CIRRUS STUNY BY AFGL
FLIMI F78-16 IN 4 APR 78 30 SECOND AVERAGING
fype: Pull-205E Intepyl Start: 18:84:03

PRESS (MB) 306.96	ALT (KH)		1 -43,520		FPT -43.8C		TAS (H/S)	128.29		2 3. 7u£-05		FOR4 F1.00		(の・・エンア) レス	7.45554-01		TOTALS	2. 75E-06	191
-MM) PRECIP PROBE	3.226.00	•	;	•		•		•	•	•		•	•	•	•			2.75E-36	161
DISFP19UTTONS (NUMRFR/M=3-M4) SIZE 1LOUD SIZE PPE (41) 0809E (MU) PR	4.7	136	1011	1716	1622	1927	2233	25.48	2964	6418	3675	3760	4969	2470	4474				
E CLOUD	, .		٦.		•	; ;	•	•		6	°.	٠		÷		•		9.	6
21S ST 351	•		•	•	13	12		16	9	- 20	23	250	27	6	=	;			
PAITICLE SIZE US SCATIER	9.91E4A	4.946+07				•	•					•		•		;			2
SI 7.	•		***	~	m	17	2	-	-	91	=	2		20	; ?	Š		CAC	160 0
PRESS (MB) 306.34	ALT (KH)	30 %	7 - 43.740		FPT -444.7C		19/H7 314		1	7 4.4.4.65		E0.4 F1.03		12 00 77 77 27	10 - E 17 - E	8.92 85E*01	21410	40-367	191
H-3-MH) 75 PRECIP	100	3.86E+00	•	•	•	• •	•	•	•	• •	•	•	•	•	•	•		40-366.4	191
NUMBER/HP3 S125		N. 10	934	4 .	075		1 1 2	5522	2534	7 7 7	F 1 7	300	00.0		C : 3	4676			
TUTTONS GLOUD	7009	ė	•	•	•	;	•	ċ	•	•	•	;	;	ċ	ċ	•			e. 0
UISTRI	î E	36	£ 5	67	20	90 T	£2 }	4 4 4	169	189	203	236	252	271	291	311			
PARIICLE SIZE UISTRINUTI SCATIER SIZE O	PR08E	2.006+09	4.585+07	ċ		ċ		•	ċ	÷	•	•	-	ċ			•		1.99F=63
72 IS	Ş	N	P 7	•	^	æ	7	13	3	15	13	19	12	23	*	;;	•		1 NC 0

AFUL CIRBUS STUDY AV AFGL FLIGHT E78-16 IN 4 APR 78 30 SCCOND AVERAGING TYPE: RULL-ROSE INTEFVAL START: 18:04:33
AFWL 3-16 1W 1-403E
647 E78
145
AFML LIPRUS STUDY BY AFGL AV.RAGING FLIGHT E78-16 JN 6 APR 79 30 SECOND AV.RAGING TYPE: BULL-DOSE INTERVAL START: 18103133

PRESS (HB) 366.23	9.02	1 -43.760	FDT -43.4C	TAS (M/S) 127.82	2 2, 97E-05	FORM F1.00	NT(4/H++3) 5.97 64E-01	707ALS 2,216-06 191
PRECIP PRORF	2.53E.30	•	•••	• • • • • • • •		•••		2.21E-06 191
МЈМВЕГ/НФ. S129 (MU)	198	1011	1522	2000 2000 2000 2000 2000 2000 2000 200	646	4763	4879	
SNOTTUE 1		÷.	6.5	.			36	;
31.2E \$1.2E (4U)	26	94	109	2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	100 100 100 100 100 100 100 100 100 100	255	341	
PARIBLE SIZE OSSTRIBUTIONS (MUMPEPHES - HU) SCATTER SIZE SLOJO SPOBE (4U) PRONT (MU) P	2.25E+39			•••	• • •			2.216-05 2
812£ (4U)	~~		۳.	43:	111	: # 2	22	0 0 0 0 0 0 0
õ.≽	AL: (4.7)	1 -43.62C	FPT -44.4C	TAS (H/S) 128-36	2 5.932-05	FORM F1.40	NT (4/H++3) 1.1935E+00	101ALS 4.46E-86 191
ECTP ROPE		U. T -43.62C	FPT - 64.40	9. TAS (H/S)	0. 7 5.932-05	J. FORM F1.40	00-4X/77LX	101418 4.46E-06 4.46E-05 191 191 191
ECTP ROPE	5.15F+UU	• •		2933 9. TAS (H/S) 2938 9. 128-36		• • •	•••	
S (NUMBED/M43-MM) DJO STT PRECIP STE (4U) PROPE	5.15F+UU	1011	1582 0	200000000000000000000000000000000000000	23 FM 00.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	•••	
S (NUMBED/M43-MM) DJO STT PRECIP STE (4U) PROPE	5.15F+UU	1011			0.0000000000000000000000000000000000000		6470 6470 6470	0. 4.46E-06
CLOJO S (NUMBED/N#3-MM) CLOJO SYZY PRECIP AGONF (4U) PROPE	26 0. 627 5.15Febb	1011			0.0000000000000000000000000000000000000		6. 6.475 0.0 0. 6.477 0.0	0. 4.46E-06

The Complete State of the Complete State of the Complete State of

FLIGHT E75-16 IN 6 APR 76 SO SECOND AVERAGING TYFE! BULL-ROSE INTERVAL START: 10:64:00

FLIGHT L78-16 ON & APR 78 38 SECOND AVERAGING TYPE: BULL-ROSE INTCHVAL STARTE 18:065:03

PRESS (MB)	ALT (KH) 9.12	1 -44.200	7PT -43,45 TAS (H/S)	124.02	FORM F + 53	NT (N /N+~3) 9.5526E+02	101ALS 3. 30E-05
3-MM) PRECIP PROBE	6.676-01		•••	•••		•••	5.76E-07 191
UNGER/NO. SIZE (MU)	404			2543 2843 3143 3143	34 PB F F F F F F F F F F F F F F F F F F	4676	
DISTRIAUTIONS (NUMBER/M+3-4M) Size Slojd Size PR (4U) 940RE	3.655.00	5.11:+03	0000	;;;;	.	: :	30-242-8
SIZE 140)	26	798	173	4 4 6 6 6 6 6 6 6 6 6 6	562	311	
PARTICLE SIZE SCATTER PROBE	2.5CE+09 5.66c+07	2.73E+06 2.73E+06 1.6EE+06	9 - NGE + 05 2 - NGE + 05	1.64E+30 5.21E+30	1.09E+06 0. 6.19E+09	2.74E.05	5.85£-05 16
117E	N: 19	ev ⊬ u	233	132	in	£ &	180 484 0
PRESS (NB) 305-44	Š	- 43.87C	AS (H/S)	6. 37E-05	FURY F . 34	.66 57 E+02	607ALS 4, 164-65 74
ā ā		- €	-	7	L 3	ٽ	
701 701 700 700 700 700 700 700 700 700	5.17E+00			2000	E 3		4.42E-06 191
701 701 700 700 700 700 700 700 700 700	437 S+17E+00			00 00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			6.42E-06 191
(NUMBER/AMA) SIZE PRECIP (MU) PROBE	#47 Se178+60			0 0 0 4 1 3 4 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1 5 1			
ONSTRIBUTIONS (NUMBER/AM) %124 GLOUD SIZE PRECIP (4U) AROAE (MU) PROBE	#47 Se178+60		AND SOUND SO	1.94mm books of the control of the c		0 9449	.05 6.42E-06
T DYSTRIUTEUNS (NUMBER/4") - NECTP STZC GLOUD SYZC PRECIP (4U) - NOORE (NU) PROBL	26 3. 407 5.47E+00		ACO UNITED MANY DO NOT THE PROPERTY OF THE PRO	1.94mm books of the control of the c	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 9449	.05 6.42E-06

	AVERAGING	15105133
	_	
. A01115 6	2 Z	INTERVAL
52713	3	
	N. 0 0	BULL-ROSE INTERVAL STARTS
		146

A-ML CTERUS STUDY BY AFGL TYPE! BULL-ROSE INTERVAL START: 18466135

PRESS (MA)	ALT (KH) 9-15	7 - 64.380	FPT -43.00	TAS (H/S) 123.66	70-389-6 2	FORM F1.00	NT (4 / M**3) 5.21 33E+01	TOTALS 3. 526-06 53
3-MM) PRECTP PROBE				• • • • • • • •			••	.a •
(NUMBER/M°3. Size (40)		1011	1622	2223	41 49	1964 1964	4576	4
SISTALBUTIONS (SIZE SLOUD (MU) PROME	· .	2.56E+	,	•••		• • • • • • • • • • • • • • • • • • •	•••	3.525 E
512E 31ST		91 19 19		6. 6.6. 6.6. 6.6. 6.6.				s
PASTICLE SIZE SCATTEM	2.52E+0	1.10E+06 2.74E+05	6 - 21E + 05		2.74E+05 2.73E+05	2.745.0	2.73E+0	5.94E-05
31 ZE	4.40	~ ~ ;	7 7 ;	343	<u> </u>	12:	\$ \$	11 0 0 II
- 10				_				•
PRESS (AB)	9.10		18/H) SVI	125.60	10 3 1 10 0 10 0 10 0 10 0 10 0 10 0 10	18 6 A R / 7 / L R	2. 47 90£+82	701ALS 2.71E-83
4 33 21 00 21 00	3.19E-01 9.19E-01		10.41 SAT	000 M M M M M M M M M M M M M M M M M M		000000000000000000000000000000000000000	\$ - \$ - \$ - \$ - \$ - \$ - \$ - \$	•
NUMBER/N.S.HM) S12E PRECIP (NU) PROBE	437 34.19E-01		2222			96		S. 71E-86 2.71E-89 301 68
NUMBER/N.S.HM) S12E PRECIP (NU) PROBE	3.198-01		9.85E+62 2233 0.	0.775+02 2843 0.		00 5447000000000000000000000000000000000	d. 4676 9.	501ALS 2.71E-03
NUMBER/N.S.HM) S12E PRECIP (NU) PROBE	26 3.3819c.c. 427 3.19C.a.l. 11	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	128 3. 855. 662 1927 3. 148 9.85. 662 2233 0.		・ の	271 0. 5069 0.	341 0. 4676 9.	874503 80-1376-8
4 33 21 00 21 00	10-12-13-13-13-13-13-13-13-13-13-13-13-13-13-	10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1928 5. 30 1985 5. 30 1928 5. 30	0.775+02 2843 0.	・ の	00 5447000000000000000000000000000000000	341 0. 4676 9.	101413 2.715-86 2.715-89 301 69

THE STATES OF THE PARTICULAR PROPERTY OF THE P

1. ERAĢING 1. J. ERAĢING	S M	ALT (KH)	9.15	7 -44.430		20.24- 144	TAS (M/S)	126.64	00:00	60-306 - 7	FOR4 F . 55		NT (4/H++3)	5.0312E+32	TOTALS	5. 73E-05	25		(;	18 108 13 1		PRESS (MB)	300.29	A1 T (KM)	9.15		1 - +4-500	FPT -42.70		TAS (H/S)	127.94	30-350-6-6		FOR4 F .73		NT (4 / 12 0 2)	4.32356+02	T01ALS 3. 57£-05	58
0 40	PRECIP PPOSE)))	5.22E+00	•	9.	••		•		•	• •		•			4.466-36	191		AFGL	STARTE 18		(FR	PRECIP	Jaoad	5.456-01		•	• 6				•	• •	• •		•	•	5.516-07	191
INTERVAL	SIZE PRE		437	1017	1316	1623	2233	253#	2943	1 1 1	1760	4065	477	9257					YE YOUTS	=		3F3/H*3	SIZE	ĵ.	437	7:6	1011	1622	1927	2233	2538	2943	710	1760	4065	4370	4576		
4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	SUTIONS (NUMB CLOJO		1.0254.5	•	•	1.19=+04	, 0 4 10 / * *	• •	;	.	• •	• -		• 6		5.255-05	57		CIRRUS	Y 0.0		HH-E*H/SAEGUN) SNOTTHE TOTALS	ירסעי	PROSE	4	;	\$0.000 e	0041/400	3.735+03		ċ	٠	.	•. c	• •	: :		7 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	58
##L E78-16 ON BULL-RC3E	015741 S126		56	¢ 4	87	118	2 3	169	189	500	230	22,	291	311					Ą	E78-16 NV	פחרר בעם:			95	36	t (29	2	1 28	148	169	189	500	230	271	291	311		
FLIGHT E	AATICLE SIZE SCATTER	380	2.57E+09	5.62E+07	1.075+06	1.34E+06	5.02E+u5	5.36=+05	5.35E+05	5.362+32	1.365+06	•	. 575 ***	2.68E+05		2012.17	ο 13 13	•		FLIGAT		2410 2 21314	SCATTER	PROBE	9.665449	5.03E+07	7.97E+05	5.26E+05	5. CYE+U2	2.64E+05	.306+05	945+	÷.	•	•		.0	1	3.655-05
	PA		61	m u	`~	ሙ	7:	4 +	9	1 5	£ :	ξ. :	3 %	52	i		2 9					ć	3I ZE	SHC)	•	J M	S	•	•	1 -	1 =	9	:	£ ;	2 2	3 12	27		1845 1611 13
AVERAGING 18:07:00	PRESS (MB) 300.26				****	FPT -42.60		1AS (M7S)	10 11 11	Z 1.11F-05		FOR4 F1.06		3, 92 54E+02		TOTALS	3. 66E-05	ς¢		AVERAGING	1167333		9RESS (MB)	;	ALT (KH)	4.15	1 -44.41C		FPT -42.50	13/11/ 314	125,77		2 1. 48E-05	,	FOR'S 199	(F + + M / N/ LN	: 5	TOTALS	5. 83E=85 54
97 AFGL 38 SECOND AV	-MM) PRECIP	PROBE		•	•			•	• •	• •		•	•	• ·	•		•	Đ	1014	ON O	STARTT 18		÷"	PROBE		•	• •	•	. ئے	•	•				•	•	••		•
STUDY 9Y 78 78 78 30 INTERVAL SI	CNUMBER/H*3-	(NC)	437	736	1011	1422	1927	2233	25.40	12.0	3454	3760	4365	4370	0 / 0				>a >a	30	KV AL		CNUMAFR/H*3-	13 E		437	1011	1316	1522	1927	26.23	2863	3149	3454	3769	4065	4576		
CIGRUS	SUTTONS (NUMB)	3 Euca	7.45F+04	7.	4.28°+03	5.101+03 A.521+03	8	:	•				:	•••	•			። ሚ	0.00	- 4 APR			EUTIONS (NUME	98096		6.86=+04	1.50* +04	1.015+04	1,375+04	•	÷.	• •	. 6	:	ċ	.	•••		5.83E-05 54
AFNL E78-16 ON BULL-ROSF	DISTAL9U SIZE	(46)) <u>}</u>	29	, e	128	143	159	100		522	271	291	311				į	12 97-87-2	BULL-003E		DISTRIE	1 E	2	92	£ 4	20	138	128	20 C	694	602	230	250	271	291 311		
FLIGHT E	PARTICLE SIZE			4.78E+07	5.43E+05	1.36E+06	2.72E+05	3.15E+05	1.362+46	5.44E+05	3 + 4 CE + U.S	2.72E+15	5.44E+05	3.15E+05	•		0.38E-05	16			TYPE		ARTICLE SIZE	SCATTER	36087	2.57E+u9	5.39E+07	1.355+06	1.L.E+06	1.086+30	3.106+05		1.35F+06	2.43E+06	•	.70E+0	2.70E+U5 3.39E+05		7.25E-05 16
	PA3	įŝ		NI PO													INC	400					ā	3175		2	₩ E	•	m	1	15	# :	n «	5 61	ನ	23	25	i	INC 4ED D

FERAGING Selæbod	PRES S (MB) 296.02	ALT (KH)	9,25		T . 44.870		FPT -42.70		TAS (M/S)
AFGL O SECONO AI START: 14	-MM) PRECIP PROBE		6 - 40E-31	:	•	:	•	•	:
TUDY BY 10 3 TEPYAL	BEP/HW3 SIZE (HU)		434	796	1011	1316	1622	1927	2233
AFWL CIRPUS STUDY BY AFGL E78-16 ON 4 APR 78 30 SECOND AVERAGING BJLL-ROSE THTEFYAL START: 18:18:01	UTTONS (NUM GLOJO PROBE		•,	ė.	•	2.42=+03	1.66E+03	1.225+03	9,615+62
AF 16.0 8JLL-ROS	01ST019 S1ZE (#U)	;	56	47	29	87	108	126	148
FLIGHT TYPE*	PAKTICLE SIZE DISTOIGUITONS (NUMBEP/MW3-MM) SCATTER SIZE CLOJD SIZE PRE PROGE (HU) PROSE (HU) PR		2.65E+09	5.03E+07	1.07E+06	7.99E+05	5.27E+05	5 . 30 E+u5	2.68E+45
	\$1.2E (MU)		۴ı	m	ın	~	æ	11	12
2AGING 19100	PRESS (MB) 299.92	ALT (KH)	9, 16		7 -44.58C		FPT -42.80		TAS (H/S)
AFGL Second Averaging Start: 18:09:00	ECIP	ALT	5.12E+00 9.16	•	7 -44-580		0. FPT -42.8C		0. TAS (H/S)
TUDY BY AFGL 6 30 SECOND AVERACING TERVAL START: 18:09:00	ECIP	ALT		0			1522 0. FPT -42.8C		•
ML CIRRUS STUDY BY AFGL N 4 APR 78 30 SECOND AVERAGING E IVTERVAL START: 18:09:00	(NUMPER/H*3-HH) SIZE PRECIP (HU) PROBE	ALT	437 5.12E+00	0 902 704	1311 0.	1316 3.	•	1927 0.	+03 2233 0.
AFWL CITRUS STUDY BY AFGL ETB-16 1N 4 APR 76 30 SECOND AVERAGING BULL-ROSE INTERWAL START: 18:09:00	(NUMPER/H*3-HH) SIZE PRECIP (HU) PROBE	ALT	437 5.12E+00	0 902 704	1311 0.	1316 3.	2.0154.44 1522 0.	1.115+04 1927 0.	+03 2233 0.
AFUL CIRRUS STUDY BY AFGL FLISHI E78-16 1N 4 APR 78 30 SECOND AVERAGING IYPE: BULL-ROSE INTERVAL START: 18:09:00	(NUMPER/H*3-MM) SIZE PRECIP (MU) PROBE	ALT	437 5.12E+00	47 4.492+64 706 0	67 4.14E+03 1311 N.	87 4.912+03 1316 3.	108 2.015+J4 1522 0.	128 1.11E+04 1927 0.	1'sb 6.825+03 2233 0.

ERAGIYG *10*33	AFML CIRQUS STUDY BY AFGL E78-16 JN 4 APR 76 30 SECOND AVERAGING BULL-ROSE INTERVAL START! 18:10:33	TUOY 3Y B 3C TERVAL S	A APR 7	AFY E78-16 7H BULL-2036	FLIGHT TYPE1		AVERÅGING 16189133	PRUS STUDY BY AFGL APR 78 39 SECOND AVI INTEFVAL START! 16	TUDY SY B 3 TEFVAL	2,	AFNL E78-16 ON 811.L-ROSE	FLIGHT	
TOTALS 1.47E-05 62	5.47E-47 191		1.425-05		9,39E-04 24	INC 4EO 9	707ALS 3.09E-04 81	4.38E-06 191		3+04E-04 81		9.50E-05	ING 4ED D
1.27 63£+02		4576	·.	311	5.52E+96	22	2.23476+03		4676	1.33E+62	111	1.052+66	22
NT(2/M**3)	٥.	4379	'n.	291	2.526+07	52	N7 (4/H+#3)		4470	4.347+22		5.25E+115	52
		4365	•	271	1.056+46	23	•		4165	1.425+03		7.86E+U5	23
FOR4 F . 66	•	3760		253	5.25E+05	12	FORM F . 56		3760	4.63E+03		5.27E+05	22
	•	3454	••	230	**96E+u7	13		0.	1671	٥.		5.24E+05	19
Z 1. 41E-05	•	3149	•	299	7.352+06	91	2 4. 958-04	•	2143	9.45"+42		2.63E+05	18
	•	2843	.0	189	<.63E+05	15			2543	6.072+03		1.31E+06	c.
128.84	ċ.	2538	۵	169	1.046+06	\$	129.12		2538	4.82-+03		1.58E+06	† †
TAS (M/S)	3.	2233	9,612+62	148	2.68E+45	12	TAS (M/S)	•	2233	6.825+03		2.36E+06	2
	•	1927	1.225+03	126	5.33E+u5	11			1927	1.115+04		2.89E+n6	17
FPT -42.70		1622	1.66E+03	108	5.27E+05	æ	FPT -42.80	•	1522	2.01E+J4		2.36E+06	œ
	-:	1316	2,42=+03	87	7.99E+05	~		٠,	1316	4.91=+03		3.41E+06	~
CL 9***	•	1011	•	29	1.07E+06	ın	1 -44.580		1111	4.145+03		3.94E+06	10
		7.06	•	47	5.03E+07	m		•	706	40+364.4		6.59E+07	m
9,23	6 • 4DE-31	437	•;	56	2.65E+09	¢,	9.16	5.12E+00	437	•		2.57E+09	C)
							-						

PRESS (MB)	295.29		ALT CKND	6.27	•	I -45,530		FPT -42.60		TAS (N/S)	125,57.		Z 1. 91E-05		EDR4 F . 89		(のチャエヘア) レゼ	4+ 91 44E+02	TOTALS	4. 52E=05
Ê	PPECIP	PROBE			•	•	•	:	•	;	•	•	•	:	•	•		•		
4BFP/74+3+	SIZE	(DE)		437	776	1011	1716	1622	1927	2233	2538	29.47	6711	3454	3763	4065	4370	4676		
DN) SNOILDE	2,030	9809c													•					6.525.40 58
JISTRI	SIZE	G.F.		26	47	29	67	198	128	148	169	697	5.09	230	250	271	291	311		
STICLE SIZE	SCATTER	(HU) PROBE (HU) PROBE (HU) PROB		2.84E+09	5 . 63E+07	1.625+06	·	5.406+05	;	2.70E+05	2.766+05	1.08E+06	2.705+05	•	2.706+05	2.70E+05	•	0.		4.17E-05 2
Ā	3175	Ş		~	m	r	•	æ	#	12	#	16	13	£1	51	23	23	24	,	INC MED 0
PRESS (MB)	2999, 73		ALT (KH)	9, 17		T -44.62C		FPT -42.8C		TAS (H/S)	130.23		•8 2		FOR4 FU.00		UT(U/H++3)	•	TOTALS	•
	CIP	2002		9.17	• 60	D. T -44.62C		9. FPT -42.8C	• 63	D. TAS (M/S)	130.23		.0 2		D. FOR4 FU.00	• 0	D. LT(N/H**3)	0.	TOTALS	3. 0. 0.
	CIP	2002		•			•		•	•	•	•		•	•	÷	•	4676 0. 0.	TOTALS	9 · 0 · 0 · 0
S CNUMBER/N#3-NM)	US SIZE PRECIP			•	706 0.	1311 0.	1316 0.	1622 9.	1327 3.	2233 0.	2538 0	2843 0.	3149 0.	34.54 0.	•	4065 0.	4370 0.	4575 0.	TOTALS	7. y 2. 0 6.
S CNUMBER/N#3-NM)	US SIZE PRECIP	BE (NU) PROBE		9. 437 0.	3. 706 0.	1311 0.	0. 1316 G.	0. 1622 9.	9. 1927 3.	0. 2233 0.	A. 2538 0.	2843 0.	0. 3149 0.	3. 3454 0.	3764 0.	0. 4065 0.	0. 4370 0.	0. 4676 0.	TOTALS	7. g 5. D. B.
	US SIZE PRECIP	CAU PROBE		9. 437 0.	3. 706 0.	67 3. 1311 0.	0. 1316 G.	0. 1622 9.	9. 1927 3.	0. 2233 0.	A. 2538 0.	2843 0.	0. 3149 0.	3. 3454 0.	7. 376A D.	0. 4065 0.	0. 4370 0.	0. 4676 0.		5.9CE-05 1. 2. 0. 0. 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19 1. 19

reconstruction. Bounder commission and account of the commission o

AFUL CIRPUS STUDY BY AFGL FLIGHT L78-16 ON 4 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18:11:90

AFWL CIPRUS STUDY BY AFĞL FLISHT F78-16 ON 4 APR 78 30 SECOND AVERAGING TYPF: BULL-ROSE INTERVAL START: 18:12:03

PRESS (MB)	24.72		ALT (KH)	9,28		T -45.67C		FPT -43.7C		TAS (M/S)	126,66		2 5, 716-04		FOR4 F . 12		NT (N/H++3)	2.179CE+v2	TOTALS 2. 23E-05 61
-3.8)	PRECIP	PROBE		1.28E+0	2.07E+00	•	•	•	•		9.	•	•	:	••		9.	••	1.096-05
BERIN#3.	ST 2E	Ş		437	705	1011	1316	1622	1927	2233	2538	2543	3149	3454	3760	4065	0227	4576	
HUMS CHUM	3 L0 00	3807c		3.49 = + 04	8.955+03	•	.	1,705+03	;	·,	•	•	•	ċ.	.,	•	•	:	1.14E-05
OISTRIS	31 ZE	(HC)		5 6	47	29	87	199	128	148	169	189	509	230	250	271	291	111	
PARTICLE SI'E DISTRIBUTIONS (NUMBER/M*3-MM)	SCATTER	PROBE		3.346+39	5.80E+07	5,358+05	3.02£+05	9,035+05	8.03E+05	5,35E+05	2.67E+05	;	5.356+45	2.68E+05	2.67E+05	2.68E+P5	;		%.44E-05
ď.	312	SE)		~	m	10	7	œ	1	12	+1	ÇŢ	4	13	27	23	22	/2	I I I
PRESS (MB)	294.55		ALT (KM)			T -45.69C		FPT -43,00		TAS (M/S)	125,53		2 1. 455-04		FOR4 F . 29		NT (N /H++3)	3, 52 0 3 E+ 01	1.07E-05
î	PRECIP	PROBE		3.24E-01	5.23E-01						•	•	1.	•			•		2.75E-06
(NUMBER/M+3-MM)	SI 2E	(AC)		437	705	1011	1316	1622	1927	2233	2538	2843	4149	404	3769	4365	4379	4676	
	CLOJO	3809c		3.475+04		; ;		1.725+03		•	•	•		:	•	,-		· .*	7.96:-06
•	S1 7E	(H)		3.6	47	67	28	108	128	148	169	183	203	230	253	271	291	11.	
PISTRI	S							_				s		S		5		2	5
PASTICLE SIZE DISTRIBUTIONS	SCATTER	PROBE	!	2.92E+09	5.61E+07	1.356+06	1.38E+00	1.895+06	1.89E+00	5.466.435	5.4.E+02	5.40E+05	9.1(E+0>	2.7CE+15		2.7.6+45	5.4.E+05	2.706+05	6.465-05

PRESS (MB) 294.88	ALT (KM)	9.28		1 -45.64C		4 -ر. من المناطقة المناطقة المناطقة المناطقة المناطقة المناطقة المناطقة المناطقة المناطقة المناطقة المناطقة الم		TAS (H/S)	126.40		7. 4. 29E-04		FORM F .18		RT (N/Hee 3)	3.5453E+01	TOTALS 1.17E-05 269
#4) PRECIP PROSE		3.64E-31	1.56E+00	٥.						.	•	:	•	9.		•0	9.19E-06
AFP/H#3- SIZE (HU)		437	7.5	1201	1316	1622	1927	2233	2538	2843	3149	3454	3760	4365	4373	4576	
PAGIICLE SIZE JISTRIGUTIONS (NUMBEP/M#3-HW) SCATIER SIZE OLOJD SIZE PR PROB, (*U) PROBE (*U) P		.:	.;	°°	•.	1.715+03	ċ	• • •	, ,	• • • •	ċ	• 5	•	•	•	•	3.565-46 58
JISTRI SIZE (MU)		92	47	29	37	108	126	148	169	189	209	2 30	253	271	291	311	
RIICLE SIZE SCATTER PROBL		3.116.09	6.26E+07	<.68€+05	·	•				•	;	2.68£112		•	.0	;	3.29105
PA 31.2E (4U)		۸i	m	ម	^	e.	11	75	1,4	10	13	13	17	53	25	23	INC THO
PRESS (MB) 294.43	ALT (KH)	9,29		1 -45.71C		FPT -45.50		TAS (H/S)	126.14		2 8.54E-04		FOR4 F .91		NT (2 / N * * 3)	1.3961E+00	TOTALS 1.64E-05 301
M) PRECIP PROSE		20.4	9														rv.
£ g		1.93E	3-116+00	•	Ġ	•		•	•	•	•	•			•		1.64E-US 301
UMBES/H#3-MH) SIZE PR(•			1316 4.	1622 0.	1927 3.	2233	2538 0.	2843 0.	71 49 D.	3454 00	3760 3.	4065 0.	4370 0.	4576 9.	1.646-0
NS (MUMBED/H#3-H .030 SIZE 2085 (MU)	3	124	706	1011									3760 3.				7. 1.64E-U
NS (MUMBED/H#3-H .030 SIZE 2085 (MU)		0. 437	9. 706	1011	•0	•	•••	•	;	•	• 0	•0		•	• 5	÷	0
13UTIONS (MUMBEP/M43-M SLOJO SIZE PROBE (MU)		0. 437	47 9. 706	1011	•0	•	•••	•	169	•	• 0	•0	•	•	• 5	÷	0

A MERIOD SERVICE SERVICE SERVICE SERVICE SERVICES SERVICE

AFWL CTRPUS STUDY NY AFGL FLIGHT 278-16 JN 4 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18:11:33

AFHL CI-BUS STUDY BY AFGL FLIGHT E78-15 3N 4 APR 7R 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18:12:33

AVERĄG IYG 18:14:0)	PRESS (HB) 294.36 ALT (KH)	62.6	1 -45.76C		FPT -42.70	TAS (M/S)	125.14	Z 6.92E+05	2000		NTCV/Ht+3)	3,6331E+62	1614LS 4.38E=05 59	AVERAGING 18114133	PRESS (M9)	294, 36	AL T (KH)	9.29	T -45.780	FDT = 42.46		TAS (H/S)	124.89	2 0.	;	FORM FC.00	NT (4/H+#3)	÷
BY AFGL 3n Second Al Start!	**/#*3-MM) SI7F PRECIP (4U) PROBE	*	1011 3.	0) #1			30	4,65 0.	0	575 0.	%.95E+06 191	97 AFGL 30 SECOND AL STARTE	(H#-3-H)	SIZE PPECIF				16 0.	•			~	0	<u> </u>	6370 9.	.76 4.
FML CIRRUS STUDY 8' 3N 4 4 PR 76 3E INTERVAL	OUTTONS (NUMBE SLOUD PRORE			,	1.555464 19		 						3.39: • ņ5 58	AFWL CIPRUS STUDY 9 , IN & APR 78 :03E INTFRVAL	INUMBE	210J0 S1		.								•		
AFNL E78-16 3N BILL-403E	DIST41 S126 (4U)	56	44 67	87	138	¥ ;	169	299	230	271	591	111		AFWL F78-16 'N BILL-907E	2	SI 2E		5 2	67	£ 6	128	148	169	209	230	250	291	111
FLEGAT	PARTICLE SIZE SCATTER PROBE	3.216+49	5.09E+0/ 5.41E+0>	2.712+05	0. 2.715+05		2.716+05	Ú.	÷.	2.71E+05	.0	;	3.62E-05	FLIGHT	NATICLE SIZ	SCATTER FPORE	,	3.2.E+09	2.71E+05	•		ė	•		•	÷.	•	<i>.</i> :
	91 25 S1 25 (MU)	~	~ 1∧	~	т Т	12	71	22	Ξ;	2.5	52	23	INC YEA 3		ā	31.75		~ *	n c	~ €	, 1	12	3 (1 -1	3 \$	13	7.	252	77
egāging 11 jidd	PRESS () 294.80		1 - 45.640		FPT -43.10	EAS (M/S)	-	Z 4. 23E-04		FOR4 F1.C)	NT (4 / H++3)	8.51136+00	TOTALS 3.14E-05 191	ERAGING 11313)	PRESS (MB)	294,32	ALT (KH)		T -45.78C		18.5	TAS (M/S)	125,15	7 1.756-64		FORM F .44	NT (N /H**3)	5.8918E+02
AVERAGIN 18113100	PRES ECIP ROBE	3.68E+01	00.	•	0. FPT	D. EAS		0.0	•	• •	•	ċ	TOTALS 3.14E-05 3.14E-05 191	V AFGL 10 SECOND AVERAGING Start: 18113133		ECIP	PRJBE	3.25E-01	5.24E-01 0. T -4	9.		TAS	•	• • •		J. FORM F	••	
RUS STUDY RY AFGL APR 76 30 SECOND AVERAGIN INTERVAL START: 18:13:00	(NUMBER/H#3-HM) PRES SIZE PRECIP (HU) PROBE	3.68E+01	•	•	0. FPT	D. EAS		2	•	• •		ċ	.14E-05 3.	9Y AFGL TO SECOND AL START!	(HH-204/c38HDX)	SIZE PRECIP	(10) PRUBE ALT	FCA 437 3.25E-01	/66 5.24E-01 +03 1011 0. T -4	1716 0.	1672 U. FP.	2233 F. TAS	2534 0.	• • •		J. FORM F	• •	
CIORUS CTUDY RY AFGL 4 APR 78 30 SECOND AVERACIN INTERVAL START: 18:13:00	ISTRIBUTIONS (NUMREP/H*3-H4) PRESTS SIZE PRECIP SIZE PRECIP (4U) 2R09E (HU) 2R09E ALT	25 0. 437 3.68E+01	706 0.	10 State 00 00 00 00 00 00 00 00 00 00 00 00 00	1622 0. FPT	2233 0 8AS	00 00	7 2 0 5 3 0 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	0 1512	3. 3750 P.	0, (47) 0.	9. 4676 P.	.14E-05 3.	CIPPUS THEY BY AFGL 4 APR 78 TO SECOND INFEFVAL STARTE	(HH-204/c38HDX)	SIZE PRECIP	(10) PRUBE ALT	3.455+64 437 3.25E-01	4.245+03 1011 0.24E-01 T -4	1716 0.	1.58f*U4 1636 U. FFI	2011 2233 r. TAS	2534 0.	0. 3449 U. 7	3454 0.	0. 376u 3. FORM F	••	4575 3.
L CIORUS STUDY RY AFGL 4 APR 78 30 SECOND AVERACIN INTERVAL START: 18:13:00	3UTTONS (NUPREP/H+3-HH) PRES CLOJO SIZE PRECIP 3R09E (HU) PROBE ALT	25 0. 437 3.68E+01	5. 706 0.	0 41kg 0	108 u. 1622 0. FPT	125 1 1 22 C 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	169 0 2519 7	1669 m. 24453 0. 2	233 00 3454 00	255 J. 2760 J.	291 0, 447) 0.	311 0. 4676 P.	3.14E-05 3.	GIDDUS STULY BY AFGL 4 APR 78 TO SECOND INTERVAL START!	(HH-E+1/c98HON) SNOTTOE INISIC	SIZE SLOUD SIZE PRECIP	(10) PROBE (10) PROBE ALT	3.455+64 437 3.25E-01	67 4.245+03 1011 0.245-01 T -4	1716 0.	*41E+05 1.05 1.58F+04 1572 0. FF1	148 2.00FF+03 2233 F. RAS	169 0. 2534 0.	0. 3449 U. 7	-71E+05 230 0- 3454 0-	. 25° U. 376u J. FORM F	6. 4965 0. 6. 4371 0.	.71E+05 311 0. 4575 3.

TOTALS 7.35E-05 61

5.51E-05

AFWL CTRRUS STUDY BY AFGL FLIGHT E78-16 ON 04 APR P8 30 SECOND AVERAGING TYPE: BULL-ROSE INTFRVAL START: 18:16:00
AFW FLIGHT E78-16 ON TYPE: BULL-ROSE
CIPPUS STUDY BY AFGL 04 APR 76 30 SECOND AVERAGING INTERVAL STARTS 10115100
ACHL FLIGHT E78-16 ON TYPE: BULL-ROSE

PRESS (MB)	294,65		ALT (KH)	9.28		T -43.96C		FPT -42.7C		TAS (HVS)	125,76		2 9. 07E-05		FORM F1.00		NT (N / Hee a)	1.8254E+00	TOTALS 0.74E-06 191
Ť.	PRECIP	PROBE		7.88E+00	•	•	•	•	:			•	•	•		•	•	:	6.74E-06
NUMBER/N#3.	SI ZE	5		434	206	1011	1316	1622	1927	2233	2538	2843	31 49	3454	3760	4065	4370	9297	
PUTIONS (מרסחם	PROBE		•	:	•		•	•	•	•		•	•	•	•	•	•	
DISTRI	SIZE	() ()		9.	47	29	87	108	128	148	169	189	509	230	250	271	291	311	
STICLE SIZE	SCATTER SIZE CLOUD SIZE PR	PROBE		3,235+49	6.95E+07	:	•	•	•				.0	•	•	:	•	•	3.20E-05
ď	SIZE	Đ.		N	m	s	~	6	==	12	77	16	16	13	72	23	52	27	INC
PRESS (MB)	294•56		ALT (KM	9.58		7 -44.04C		FPT -43.0C		TAS (H/S)	124.79		2 1.15E-05		FOR4 F1.00		(だしかがく アントル	2, 32 36 E-01	TOTALS 8.57E-07
ĵ.	PRECIP	PROBE		1.00E+00	•	•	•	•	•	•	•	•	•	•		•	•	• 0	8.57E-07
KUNBER/H*3-KK)	SI ZE	Û¥.		437	4 06	1011	1316	1622	1927	2233	2538	2843	51.49	3454	3*60	4065	4370	4676	
=											_				•	•			
	מרסתם	■R09E		•	•	•		•	•	5	Č	P	0	c	0	0	0	c	ċ
	SIZE CLOUD												209 0						6
I SULLONS (SCATTER SIZE CLOUD					67													INC 3.22E-05 0

PRESS (#8)	294.96		ALT (KH)	. 9.27		T -43.91C		FPT -42.70		TAS (H/S)	126,11		2 1.36E-04		FORM F1.60		KT (K/HOF3)	2,73616+00	TOTALS	1.01E-05 191	
(II)	PRECIP	PROBE		1.185.01	•	•	•		•	•	•	•	•	•	:	•	•	1676 0.		1.01E-05 191	
NCHR ER/N+3	SIZE	SH.		437	7.6	1011	1316	1622	1927	2233	2538	2843	31 49	3454	3760	4065	4.70	9294			
DIIONA	CLOUD	PROSE		•	•	•	•	•	•	•	•	•	.	•	•	•	•	•			
DISTRIB	SIZE	(AC)		92	47	29	4	108	128	148	169	189	503	230	250	271	291	311			
STICLE SIZE	SCATTER	(NU) PROBE (NU) BROSF (NU) PROBE		3.21E+09	6 • 48E + 07	2.69E+115	•	:	•		•	•	•	•	•	•		:		3,16E-05 2	
PA	SIZE	SH)		~	m	S	^	6	7	15	1	16	91	5	7.	23	52	22		INC MED .0	!
PRESS (MB)	294047		ALT (KH)	9.28		1 -44.05C		FPT -42,90		TAS (M/S)	125, 31		2 1.76E-04		FORM F1.00		X1 (X / X04 3)	3.54.636+40	TOTALS	1.31E-05 191	
Ť.	PRECIP	PROBE		+37 1.53E+01	•	•		•	•	•	•	•	•	•	•	•	•	:		1.31E-05 191	
CHRERY N. 3	SIZE	(AC		437	786	101	1316	1622	1927	2233	2538	2843	3149	3454	3769	4865	4370	9295			
I) TONG C	CLOUD	PROSE		•	•	•	•		•	•	•	•	•	•	•	ċ	•	•		.	
DISTRI	SI ZE	S E		92	47	29	67	108	126	148	169	189	503	730	250	271	291	311			
TICLE SIZE	SCATTER	PROBE (MU) PROBE (MU) PROBE		3.28E+09	7.16E+ 07	2.72E+05		•		•	•	•	•	•	•	•		•		3.25E-05 2	
ď	SIZE	(OK)		~	m	ľ	^	æ	11	15	4	9	S	67	7	23	52	23		1 EQ 0	

是一个,我们是一个,我们是一个,我们是一个,我们是一个,我们是一个,我们是一个,我们是一个,我们是一个,我们是一个,我们是一个,我们是一个,我们是一个,我们是一个

AFUL CTPRUS STUDY BY AFGL FLIGHT E78-16 ON D4 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSF INTERVAL START: 18115:30

AFUL CIRPUS STUDY BY AFGL
FLIGHT E78-16 ON 04 APP 76 30 SECOND AVERAGING
TYPE: BULL-ROSE INTERVAL START: 16:16:30

AFML CIRRUS STUDY BY AFGL FLIGHT E78-16 ON 04 APR 78 30 SECOND AVERAGING MYPE: BULL-ROSE INTERVAL START: 18:17:80

FLIGHT E78-16 ON 04 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18118:08

PRESS (NB) 294.04	ALT (KH)			T -44.17C		FPT -43.10		TAS (MYS)	128.14		Z 2. 82E-04		FORM F . 91		NT(N/Heed)	4.6037E-01	TOTALS 5.40E=06 301
-MH) PRECIP PROBE		6.36E-01	1 • 03E + 00			•	•	ċ	•		•	•	•	•	•		5.40E-06
OISTRIBUTIONS (NUMBER/M+3-MH) SIZE CLOUD SIZE PR(;	434	706	1011	1316	1622	1927	2233	2538	2843	3149	3454	3760	4065	4370	4676	
UTIONS CLOUD	,	ċ	•	•	•	•	ë	•	•	•	ċ	•		ċ	•	•	•
		5 6	47	67	87	106	128	847	169	189	503	230	250	272	291	311	
ARTICLE SIZE Scatter Probe		3.18E+09	6.45E+07	5.31E+05	•	•	•	2.642+05	•		•	•	•	÷	•	•	3.10E-05 2
SIZE		~	m	5	^	σ	11	12	47	16	18	\$	12	23	52	27	INC 4En D
PRESS (MB) 294.49	ALT (KH)	9°58		740.44- T		FPT -42.70		TAS (M/S)			2 2, 254-05		FORM F1.00		NT (N / H++ 3)	4.53 89E-01	TOTALS 1.67E-06 191
-MM) PRECIP	1004	1.96E+00					•				•	•		•			1.67E-06 191
NUMBER/M+3-MM) SIZE PR		437	706	1011	1316	1622	1927	223	2538	2843	3149	7572	3760	4065	4370	4676	
~	3004	0.	ď			: -	é		: -	: -							• •
STOIS	, E	26	14	2	\$		* 2 2	4 4	4 +		600		250	27.4		311	
50.																	
PARTICLE SIZE DISTRIBUTIONS SCATTER SIZE CLOUD	Y KO	Z.205409	6.255407	2.70F405	2.705405			•		•						•	3.145-05

PRESS (NB)	293.87	ALT (KH)	9.30		1 -44.190		FPT -43.10		TAS (H/S)	126.73		2 4. 19E-04		FOR F . 91		NT (N /Hee3)	6.8564E-01	TOTALS	8. 44E-05	190
(##)	PRECIP PROBE		9.476-01	1.536+00	•	;	•	•	•	•	•	•	•	•	•	•	•		8.04E-06	105
NUMBER FM*3	SI7E CLOUD SIZE PR (HU) PROSE (HU) P		437	106	1011	1316	1622	1927	2233	2538	2843	3149	3454	3760	4065	4370	9297			
UTIONS (5000 PR09F		•	•	•	•	٥.	ċ		•	•		•	•	•	•	•		·	D
DISTRIE	St7E		5 6	41	29	87	108	126	148	169	189	503	230	250	271	291	311			
NATIOLE SIZE	E SCATTER		3.21E+09	6.66E+07	•	•	•		•	•	•	•	;	•	•	•	•		3.16E-05	N
å	SIZE		~	m	r.	٨.	G	#	12	#	16	97	F 3	72	23	52	27		ON S	2
PRESS (MB)	294.21	ALT CKH	9.29		1 -44-13C		FPT -43.00		TAS (MS)	126.98		7 1. 42E-04		FORM F .91		NT(N/He#3)	2.3238E-01	FOTALS	2.72E-06	1
· ·	PRECIP		3.21E-01	5.18E-01		•		•		•		•							2.72E-06	7 0 27
NUMBERYH*3-MM)	SIZE		437	706	1611	1316	1622	1927	2233	2538	2843	31 49	36.54	3760	4065	4370	4676			
	0,000	100	0								. 0		•						;	8
OTSTRIE	SI ZE		36	1	24	87	108	128	4	4	**	500	230	250	27.1	294	311			
TICLE SIZE	SCATTER SIZE CLOUD	3608	3.24F409	7.346+07	S. 15F+05	2.67F+0R						2. K6F+05	2.39F+06			5.316+05	1.59E+86		8.87E-05	8
4	SIZE	è	•	۳ ر	y c	١.	. σ	` <u>-</u>	; ;	1 4	10		0		: ~	100	3 6		INC	#60 0

Portugues and the companies of the contract of

A-WL CTROUS STUDY BY AFGL FLIGHT E78-16 ON 84 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18:17:30

FLIGHT! E78-16 ON O4 APR PR 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18:18:30

AFNL CIRRUS STUDY BY AFGL FLIGHT! E78-16 ON 04 APR 75 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 16:20:00 AFWL CIRRUS STUDY BY AFGL FLIGHT E78-16 GN 04 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 1819:00

25 29	ALT (KH)	3	T -44.28C	204.2. 00		TAS CHUS	129,95	7 . 30C-01.	*0-36c •7 7	1000	_	17 VN / NO 41	2.25 68E-01	707ALS 2,66E-06 301	AVERAGING 16:20:30	PRESS (MB) 293.81	AL T (KH)	9.30		358.5t-	FPT -42.90	TAS CHASS	4		2 3. 66E-U5	FORM F1.00		7.35.29E-01	TOTALS	2.726-06
PRECIP PROBE	10-36.	5.656-01	•	•		•	•	•	•	•	• •			2.66E-46	AFGL 3 SECONO START:	-NH) PRECIP	PROBE	3.18E+00	٠						•			• • • •		2.72E-06 191
OISTRIGUS (NUMBER/M*3-MM) SIZE ELOUD SIZE PR (MU) PROBE (MU) P		106	1011	1316	1927	2233	2538	2843	3149	4040	3750	60.67	4576		STUNY (78) 78 Nterval	OISTEIGUTIONS (NUMBER/M#3-HM) SI7E GLOUD S12E PR	9	437	106	4 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1622	1927	2538	2847	3149	3760	4065	4370	,	
EQUTIONS (CLOUD BRORE	•	• •			• •								::	÷		I 9UTTONS SLOUD	PROAE		_	_		Φ (•	<i>-</i>		0	éć	•	•
		£ 2	67	- 6	128	84	159	189	503	230	220	1,7	111		E78-16 BUL-6	E OISTPI SI7E	S V	56	*	67	108	128	169	189	209	250	271	162	•	
PARTICLE SIZE SCAFFER PROBE	5 6	3.09E+09	7.83E+05	7.63E+05	2.61E+U5 0.	2.61E+05	•	<u>.</u>	•		.		• •	3.20E-05	FLIGHT'	7	PROBE	3.075+119	6.91E+07	2.09E+06	1.04E+06	0.	0.555	2.61E+115	.			•	:	3.446-05
PA SIZE CMUN	•	N P	ស	~ (5° 47	12	*1	16	18	13	25	8	8 %	INC		PA 512E	Û¥.	٨	כיו	w t	. o	# 5	3 4	9	9	2 2	: 23	52	ì	INC MED D
PRES S (MB) 293,93	ALT (KM)	00 %	T -44.20C		FF1 -43.10	TAS (MES)			Z 3.02E-05		FORM F .27		5.04 40E+01	FOTALS 5.55E-06	RAGING 19130	PRESS (MB)	A 7			T -44.23C	FPT -43.10		129.79		Z 1.39E-04	FORM F .91		(Meer/N) LN	70 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	2.66E-06 301
PRES	ALT	55E+00	-	į		TAS		•	2 .		FORM F	•	0. S. 04 40E+01	# # # # # # # # # # # # # # # # # # #	AFGL O SECOND AVERACING START: 10:19:30	PRES		•	.06E-01	-	FPT		•		2	14.		0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -		2,66E-06 2,66E-06 301 301
PRES	ALT	2.55E+00	-	•		0. TAS	•	•	2 .0	•	G. FORM F	•	• •	.18E-06 5.	SY AFGL 30 SECOND IL STARTE	PRES	- -	3.14E-01	5.066-01	-	FPT	•	4		2	R MRCH	• 6	•	•	2
(NUMBER/143-MM) PRES SIZE PRESIP (MU) PROBE	ALT	2.55E+00	10.11 0. T	•	1572 6. FF1	2233 0. TAS	•	2843 0.	2 0 6,12	3454 0.	. 3760 G. FORM F	4003 0	• •	.18E-06 5.	IL GIPAUS STUDY BY AFGL 1 04 APR 76 30 SECOND 2 INTEPVAL START!	(NUMBER/NW3-MW) PRES D S12E PRECIP	PROBE	437 3.14E-01	5.066-01	1014 D. T	1622 0. FPT	1927 0	25536 0.	2643 0.	3149 0. 2	T TOOL TO COME	4065	•		2
DISTRIGUS (NUMBER/M3-MN) PRES. SIZE CLOUD SIZE PRECIP (MU) PROBE (MU) PROBE	ALT	0. 437 2.55E+00	0. 1011 0. T	2.45E+03 1716 D.	0. 1572 0. FF.	0. 2233 0. TAS	0. 2536 0.	2843 0.	2 0 6,12	20 7572	S. STED D. FORM F	100000000000000000000000000000000000000	4576 6.	37F-06 2.18E-06 5.	IL GIPAUS STUDY BY AFGL 1 04 APR 76 30 SECOND 2 INTEPVAL START!	(NUMBER/WW3-MW) PRES D S12E PRECIP	PROSE (HU) PROSE	0. 437 3.14E-01	0. 706 5.066-01	n. 1014 0. T	n. 1415 U. FPT	0. 1927 0.		0. 2843 0.	3149 0. 2	7 200 U 30	4065 0.	0 0000		2,66E-06 2,
(NUMBER/M*3+MM) PRES SIZE PRECIP (MU) PROBE	ALT	0. 437 2.55E+00	67 0. 1011 0. T	87 2.455+03 1716 0.	108 0. 1572 0. FP.	-23E+05 148 0. 2233 0. TAS	. 169 0. 2536 0.	2843 0.	2 209 0. 31.49 0. 2	*36E+86 230 0. 3454 0.	. 250 9. 3760 0. FORM F	40 540 Pt 40 577 Pt	0. 4576 0.	37F-06 2.18E-06 5.	. CIPRUS STUDY BY AFGL 14 APR 78 30 SECOND INTEPVAL STARTI	ZE DISTRIEUTIONS (NUMBER/H*5-MM) PRES Size Gloud Size Precip	PROSE (HU) PROSE	26 0. 43* 3.14E-01	47 0. 706 5.06E-01	67 n. 1014 n. T	n. 1415 U. FPT	128 0. 1927 0.	140 U. 2053 U. 150	189 0. 2843 0.	209 0 3149 0 2	7 200 U 30	271 0. 4065 0.	4370 0.0		2,66E-06 2,

ACHTHADA AN THE THE STANDARD SOLL THE STANDARD SOLL SANDARD SOLL SANDARD SOLL SANDARD SOLL SANDARD SOLL SANDARD

•

AFNL CIRRUS CTUDY BY AFGL FLIGHT E78-15 CN 04 APR 78 30 SECOND AVERAGING AFUL CIRRUS STUDY BY AFGL FLIGHT E78-16 ON 04 APR 78 30 SECOND AVERAGING

5.38E06 6 77 0. 1111 0. 1 -44.830 5 5.3376 0. 100 1.064-03 100 100 100 100 100 100 100 100 100 1	AL 1		•		- • •	0. FPT -43.1C		145	•	0. Z 1.28E-05		0. FORM F1.00	•	3 47 04 E D S	•	# # # # # # # # # # # # # # # # # # #	37 SECOND AVERACING START: 18:22:30	IN) PRESS (MB)		ALT (KH)	•	0 - 44.86C			•	145 (HZ)	151055	2 0.	•		D. NT(N/He+3)	0.0	LOGALS
### 100	IUMAER/M*3-M SIZE	CHC)	437	904	1011		1927	2233	2000 2000 2000 2000 2000 2000 2000 200	3149	4542	3760	4965	0404	4/94		STUDY (78 NTEPVAL	IU#9ER/H*3-H															
## STICLE SIZE DISTRIPUTIONS (MANAGRAMS	TRIGUTIONS (N	IU) *R08E	0	0 9	•	1.64	•					0	0	0 0	0	30-31-4.f 50-35-4.f		N) SNOILDEIGH	U) PROPE														
ANTICLE SIZE DISTRIPUTIONS (NUMBER/MYMH) PROSE RING TOOL	TICLE SIZE OIS SCATTER SI	PROBE (1												•	.18E+05	.97E-0	FLIGHT E78- TYPE: BULL	SIZE	PROBE CH														
SCAFER SIZE DISTRIPUTIONS (WUMBER/WHY-HH) SCAFE SIZE TOUD SIZE PRECIP 6.11E-07 6.11	SIZE	(HC)	۸.	en (22			₹															
SCATTER SIZE DISTRIPUTIONS (NUMBER/M**-MM) SCATTER (NUMBER/M**-MM) SC	PRESS (MB) 293.71	A: T .4			398.33-			•	130.29			FORM F1.00		(かきまとう) レス	1.46956-01	TOTALS 5. 42E-07 191	RAGING 121130	PRESS (MB)			9.31	•				•	130.64			FORM F . 43	NT (N / N * 8 B)	1.16735+02	TOTALS
AATICLE SIZE DISTRIPUTIONS (NUMBER/WE SCAFER SIZE TLOUD SIZE TOOUD SIZE TOOUD SIZE TOOUD SIZE TOOUD SIZE TOOUD SIZE TOOUD SIZE SAFENGE SO SIZE TOOUD SIZE SO SIZE TOOUD SIZE SO SIZE TOOUD SIZE SO SIZ				•	• •			•	• •		.0	•	•	•	•	5.42E-07 191	AFGL Second Ave Starte 101	£.	PROBE		6 . 34E-01			•	•	•	• •		•	•	•	•	
AATICLE SIZE DISTRI "ITIONS SCAPE (NU) PROPE	BER/H*	OH)	437	406	1011	1622	1927	2233	2538	3149	7572	3760	4065	0604	4676		لج ``ھ	NUMBER PRO	S12E		434				1927	2233	20.50	31.69	7670	3760	£140	4676	
AATICLE SIZ SCAPTES IZ SCAPTES IZ SCAPT	ž						•	.	; ;	::	•	•	•	•	•	•		BUTIONS	PROPE		.			.65E	ċ	•	•		•	• •	• •	ċ	
SIZE SCAFER (MU)	Į.	•	•	ė	o e	_									_		∡ ર્જે દુ	181	₹5		, 2	67	4	8	e	9 0	* 6°	6	0	۰.	4 =	=	
C	SIZE C	(HIL)	36	14	7 2 8	108	128											ш															
	SIZE C	(HIL)	36	14	7 2 8	108	128									4.14E-0		TICLE SIZE															!

on a me menter series en series propositioning (propositioning solutions and propositioning)

INC 9.45E-05

AFML CIRBUS STUDY BY AFGL FLIGHT E78—16 QN 04 APR 78 30 SECONO AVERAGING TYPE: BULL—ROSE INTERVAL STARTS 18123:03

AFUL CIRRUS STUDY BY AFGL TYPE: BULL-ROSE INTERVAL START: 1862460

PRESS (MB)	A1 T	9.31	1 - 44.360	FPT -43.0C	TAS (M/S) 132.91	2 7.691-03	FORM F . 42 NT(4/H++3)	#OTALS 2.83£-03 69
-NA) PRECIP	PROBE	2.47E+02				• • •	••••	2.56E-04
NUMMER/HP3 S12E							2004 4065 470 4674	
SUTTONS (1	PROBE	3.246+05	5.205+04	2.59E+05	9.83E+04 2.96E+04 5.47E+04	4.01E+03 6.46E+03 6.49E+03	2.44£+03 1.32E+03 1.055+03	2,57:-03
OTSTRI SI ZE	5	5.0 4.4	6 6 7	108	1 4 4 6	2000	321	
PARTICLE SIZE DISTRIGUTIONS (NUMBER/H+3-4H) SCATTER SIZE CLOUD SIZE PR	3608	1.07E+09	2.91E+07 1.76E+07	1.50E+07 1.40E+07	1.30E+U7 3.68E+U6	3.31E+06	3.312+06 3.312+06 4.08E+06	4.01E-U4 20
S1 76	•	u # •	n K ·	* # ?	444	3 5 7	222	INC TED D
PRESS (MB) 293.18	£ 5.		3 5	3 6	2 4	g	~ ~	v, ±
PRESS	ALT.		EDT TATE	TAS CHA	131.70 Z 2.66E-04	FOR4 F .66	NT (4 / H+# 3) 7.2272E+02	101ALS 1.52E-04 72
RECIP	AL T	4.986-01	0	O TAS (HE	0. 131.7 0. 2 2.66E=0	0. 0. FOR4 F .6	0. NT(4/H*B3 0. 7.2272E+0	701AL 301 1,52E-0
RECIP	3.08E-01	4.98E-01			2843 0. 1316. 3149 0. 2 2.66E=(• • •	
(NUNDER/H+3-MH) SIZE PRECIP (MU) PROBE	3.08E-01	4.98E-01	03 tate 0.		25 28 43 0. 23 3149 0. 2 2.	44 64 64 64 64 64 64 64 64 64 64 64 64 6	• • •	
DISTRIBUTIONS (NUMBER/Mes-MM) SIZE CLOUD SIZE PRECIP (4U) FROSE (4U) PROBE	ALT 437 3.085-01	4.98E-01	4-01E+04 1415 0. 6-54E+04 1522 0.	8-48E+07 1927 0. 7-63E+03 2233 0. TA	23 2843 0. 23 3149 0. 7 2.2.	1.02E+03 3454 0. 0. 3764 n.	1000 1000 1000 1000 1000 1000 1000 100	1.49E-04 2.62E-06 72 301
(NUNDER/H+3-MH) SIZE PRECIP (MU) PROBE	26 9.815+04 437 3.08E-01	67 0. 1011 0. T	6 87 4-84E+04 1415 0.	148 7.63E+03 1927 0.	169 0. 257.46 0. 27.16 0. 2.2. 29.9 2.76E+03 314.9 0. 2.2.	1.02E+03 3454 0. 0. 3764 n.	291 3. 4490 0. 311 0. 4676 0.	4 2.62E-06 301

PRESS (MB) 292,96	ALT (KM) 9.32	FPT -44.340	1A5 (MS) 133.21	Z 5.491-03 FORH F .36	NT(N/H+43) 1.0272E+04	#OFALS 1.42E-03 68
S-MMJ PRECIP	3.04E+02 7.45E+02	000	••••			2,64E-04 195
(NUMBER/M#3-HM) SIZE PR			1927 2233 2538 2653	314934543766	4370	
DISTRIBUTIONS (NU SIZE GLOUD	4.21E+05 1.45E+05	2.10E+0& 6.19E+0& 1.44E+05	5.95E+04 3.77E+04 5.44E+03 5.04E+03	2.75E+07 0. 2.24E+03 2.61E+03	3,046+03	1.155-03
	26 47	57 50 50 50 50 50 50	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	230 250 17:	311	
PARTICLE STZE SCATTER PRUBE	2.9×E+09	1.93E+U7 1.09E+U7 6.62E+06	3.36E+06 5.36E+06 5.39E+06	1.78E+06 1.02E+06 1.53E+06	2.04E+06	2.25E-04 19
31 26 (4U)	es es c	n ← Φ +	1239;	3228	20	14C
PRESS (#8) 293.18	ALT (KH) 9.31 7 - 44.400	FPT -43.10	TAS (M/S) 132.50 7 5.265.03	FORM F . 42	6.4268E+03	1.29E-03
PRECIP PROBE	2.36E+02 4.95E+00		••••	0000	:	2.16E-04 197
(NUMBERPN#3-MH) STZE PR (HU) F	437 706 1911			4404 4404 4406 4408		
Đω	2.60E+0# 7.69E+v4 0.	2.63E+04 9.52E+04 4.21E+04	4,45E+04 1,17E+04 3,26E+04 1,29E+04	4-05E+03 2-25E+03 1-98E+03 1-75F+03	1,325+03	1.075-03
SIZE (4U)	26 47 67	108 128	169 169 204 204	230 271 291	311	
PASTICLF SIZE JISTRIPUTIONS SCATTER SIZE CLOU PROBE (4U) BROS	3.01E+09 9.49E+07 2.61E+07	1.42E+07 1.15E+07 6.14E+06	1.02E+05 2.62E+06 2.65E+06	1.00 E + 00 E +	1.795+06	2.27E-04 16
912E (MU)	n m n i	· • = :	4366	1222	2	0

FLIGHT: E78-, AFRL CIRPUS STUDY BY AFGL TYPE: BULL-1:0SF THERVAL START: 18123130

AFULCHT 278-16 JH OF ARQ 78 30 SECOND AVERAGING TPE: BULL-ROSF INTERVAL START: 18124:30

88 89	ALT CKM		T -44.11C	707 -6.3.70		FAS (M/S)	-	2 8, 116-03			NT (N / H++3) 9.81.18E+03	TOTALS 2.16E-03 86	KVERAGING 13:26:30	PRESS (MB) 293.57	ALT (KH)	9.30	T -44.190	FPT -43.60	TAS (H/S)	1	310	FORM F . 49	NT (N / H++ 3) 6.92 37 E+03	101ALS 8,65E-04 64	
Y-MM) PRECIP PROBE	•	2.975+00	•	•	•	•	•	• •	•	• •	•••	3.64E-04 193	AFGL 0 SECOND STAPT:	-MM) PRECIP	1	2.46E+00 3.97E+00		•	• • •		••	•		2.09E-05	
HUMBER/HE STZE (MU)											13 4470	*n	STUDY 9 78 NTERVAL	NUMBER/M+3 STZE									4370	4	
SUTIONS CLOUE											291 5,56E+03 311 3,91E+03	1.79E-0:	AFML DIYPUS F78-16 ON D4 APR BULL-ROSE	STRIBUTIONS (ST ZE CLOUD										8.44E-81	
LE SIZE DISTRI TTER SIZE OBE (MU)											1.27E+06 29	5E-04 17	FLIGHP F78-1 TYPE: BULL-	NATICLE SIZE DIST SCATTER SIZE PROBE	•								1.5%E+06 311	E-04 13	
PARTICLE SIZE SIZE SEATTER (MU) PROBE											25 1.27 27 1.02	TMC 2.18	W. E	PAKTICE SIZE SCAT									25 1.54	INC 1.746	
8 89	ALT (KE)		1 -44.32C	55.54- TQ3		TAS (HVS)	134.19	Z 1.18E-03	FOOM F 45		NT (N 7N==3) 2.6774E+03	TOTALS 4.22E-04 83	AVERAGING 18625833	PRESS (ALT (KM		T -44.21C	FPT -43.6C	TAS (M/S)	2 7.54E-03		FORM F . 37	NT (4 / H+8 3) 3.31 94£+03	TOTALS 9, 76E-04 128	
PRECIP PROBE		• •									•••	4.636-05	RY AFGL 30 SECOND AVE L START: 10:	PRECIP	•	4.21E+02 6.46E+00	• •					••		3.88E-04 196	
(NUMBERFH*8- SIZE (MU)											4676		STUDY 78 NTERVA	(NUHAFR/H*3. SIZE		4 106			2233				3 4676	.•	
SUTIONS ELOUD PROSE	4364.4	3.385+04						5.456+03		ċ	8.34E+02 1.67E+03	3.765-04	CIRRUS 04 APR	SULTONS CLOUD	?	1.61E+U 5.09E+D	0.	1.936+0	1.785+0	1.005+0		1.915+0	3.61F+0 2.81E+0	\$ 0 \$ 0 \$ 0 \$ 0	
IZE DISTRI SIZE (MU)											5 291 5 311	s o.	AFNL HT E7A-16 JN 18 BULL-ROSE	SIZE DISTRI		6 №	9 9	201	994	9 40		v v	86 311	4	
PARTICLE SIZE E SCATTER PROBE	64846										7.57E+09 5.05E+09	9.57E-0	FLIGHT TYPE 1	SCATTE SCATTE		3.37E+ 9.24F+	8 - 10E+	6 - 0 0 5	2 . 5 4E+	1.776+	2.998	2.52E+ 7.63E+	9.06E+ 1.52E+	1.30E-04 D 15	•
SIZE	•	u 119	•	~ 0	`	12	37	91	£1 2.2	23	25	99 119 6	4	SIZE		60 m	W 10				4 +	2 2	200	A M	•
												v	-												
																									- - - - -

AFML CIRRUS STUDY BY AFGL FLIGHT! F78-16 ON D4 APR 78 30 SECOND AWERAGING TYPE: BULL-ROSE INTERVAL START: 18:28:00
ري د
AFML CIRRUS STUDY BY AFGL ON 04 APR 76 30 SECOND AVERACINI OSE INTERVAL START: 16427:00
AFNL CIRRUS STUDY 9 FLIGHT F78-16 ON 04 APR 78 #YPE: BULL-ROSE INTERMAL

PRESS (418) 293.70		ALT (KR)	7 -44.130		FPT -42.50	TAS (HES)	126,79	7 1.78F-02	1	FORM F .52		1,70 346404	707ALS 4.74E-03	AVERAGING 18426130	PRESS (MB) 293.51	ALT (KH)				FPT -42.8C	TAS CHUS!	*	7 1. 6AE=03		FORM F .52	NT CV /Nee 3)	8.44 .35E+83	. 07ALS 1 51E-03	•
/H*3-HN)		437 8.48E+02	5.116+0	. 0	1622 0.	•	0		•	•	•	470 0.	7.24E-04 193	9Y AFGL 30 Second Al Start:	ECIP	2000		2.03E+0		1622 0.		0		0	0		•	1.895.34	CA 7
OISTRIBUTIONS (NUMBER/N+3-	U) PROBE	9.045+05	1.505+05	40+3E+0+	108 1.39E+05 1	1.076+05	3.465+04	7.835+04	704407	2.20E+04	1.665+04	1.29E+04	•	AFWL CIPRUS STUDY 9Y E78-16 ON O4 APR 78 3 BULL-ROSE INFRVAL	TRIGUTIONS (NUMBER/143-MM) ZE CLOUD SIZE PRI		5.67F+05	7.91E+04	1.24E+04 2.94E+04	108 8-84E+04	7.685.404	1.766+04	3,20E+04	4.156+03	2.31E+03	1.515.03	1.050+03	1.375-03	u L
PARTICLE SIZE DIS					1.56E+07							4.745406 2	4.21E-04	FLIGHT E78- TYPE & BULL	PARTICLE SIZE DISTRI					7.09E+06						۰. ۵		2.28E-04	
SIZE	SE	2	* ~ U	n *	σ:	12	3	9.5	9 0	33	23	£ %	14C 0		SI 26	Ď.	٧,	M) (r.	σ;	11	14	91	9 5	51			ONI	
~~																	_												
PRESS (MB) 294-12		ALT (KM) 9.29	4		FPT -43.20	(AVS)	130.99	***************************************	ch_36/07/7	FORM F . 60	,	NT (N/H++3)	TOTALS 1.796-03	RAGIN G 27130	PRESS (#8) 294.34	ALT (KK)			7 -44-050	FPT -42.60	10000	120.00		CA-366 40 7	FORM F . 46	1	9-42 05E+03	1.91E-13	PO
ECIP	PROBE	1.05E+02	1.00E+00	•	0. FPT		• 0	•	,		•	•	8.49E-05 1.	GY AFGL 30 Second Averaging L Start; 18127130	PRESS	PAUSE At T	3.06E+02	4.096+00	-	FPT	•			•	G. FORM F	•	• •	TOTALS 2.70E-04 1.91E-03	
NUMBER#M#3-MM) SIZE PRECIP	(HU) PROBE	ALT 1.05E+02	706 1.00E+00	1316 0.	1622 0. FPT	2233 0. 1285	2548 0.	2843 0.	7 00 65%	3760	40 65 0.	.0 04.7	8,49E-05 194	GIORUS STIJOY BY AFGL OL APR 76 TO SECOND INFEPVAL STARTI	NUMRER/H*3-MH) PRESS	TAUL PRUBE	2+05 437 3.06E+02	E+0# 706 4.09E+00	1+04 4044 G. T	F+05 1622 0. FPT	E+04 1927 0.		E+04 2643 0.		E+0'4 3760 0. FORM F	M+DW 4065 0.	1403 4676 D.	.70E-04 1.	195
BISTRIBUTIONS (NUMBER/M#3-MM) Size Cloud Size Precip	#ROSE (HU) PROBE	ALT 1.05E+02	1.39E+05 706 1.00E+00	1.227+04 1011 O. L. A.	08 1-38E+05 1622 0. FPT	20 0.0055+04 1927 0. 48 8.075404 2233 0.	69 2,775+04 25,18 0.	59 3,75E+04 2843 0.	7 00 65% 506,050 506	30 300/8+03 3460 0.	71 1.02E+03 4069 0.	9.14E+02 4770 0.	1.70g-03 0.49E-05 1.	AFML GIORUS ST110Y BY AFGL ETA-16 CN 04 APR 76 TO SECOND BULL-ROSE RMEEVAL STARTI	OISTRIBUTIONS (NUMRER/H#3-MM) SIZE GLOUD SIZE PRECIP	FROME (AU) PROBE	5 5.67E+05 43T 3.06E+02	7 9.695+04 706 4.095+00	7 1.04:+04 1011 0. T	1622 0. FPT	6 6.40E+04 1927 0 .	2.17E+04 2556 0.	9 2.79E+84 2643 0.	0 0-100-01 01-14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 4.63E+07 3760 0. FORM F	the description to the contract of the contrac	2.095+03 4576 0.	645-03 2.705-04 1.	195
ISTRIBUTIONS (NUMBER/M#3-MM) Size cloud size precip	PROBE (MU) PROBE (MU) PROBE	ALT ALT 4.05E+09 26 7.87E+05 437 1.05E+02	1E+06 47 1.39E+05 706 1.00E+00	16+07 87 4.636+04 1346 0.	08 1-38E+05 1622 0. FPT	15400 120 0.0015404 1427 0.	2E+06 169 2+77+04 2518 0.	15-06 189 3,75E+04 2843 0.	10 00 10 10 10 10 10 10 10 10 10 10 10 1	25-00 630 3-3/2+03 32-50 0. 25-06 250 4.177+03 37-60 0.	5E+06 271 1.02E+03 4065 0.	2E+06 291 9.14E+02 4.70 0.	SE-04 1.70g-03 8.49E-05 1.	GIORUS STIJOY BY AFGL OL APR 76 TO SECOND INFEPVAL STARTI	SUTIONS (NUMRER/H*3-MM) PRESS		26 5.67E+05 437 3.06E+02	47 9.69E+04 706 4.09E+00	67 1.021.04 1011 0. T	108 1.20°+05 1622 0. FPT	128 6,43E+64 1927 0.	169 2-17E+04 2555 0-	189 2.795+84 2643 0.	SUBSTITUTE OF THE CO.	250 4.63E+07 3760 0. FORM F	274 3.64E+03 4065 0.	311 2.095+03 4576 0.	04 1.64E_03 2.70E_04 1.	195

FLIGHT EZG-16 ON OG APR 78 38 SECOND AVERAGING EMPES BULL-ROSE INTERVAL START: 18129108

sees to be recommended to the control of the contro

STUDW BY AFGL 7 VB 30 SECOND AVERAGING INTERVAL START# 28338000		EC I P ROBE	437 2-18E+01 ALT (KH) 706 0.	11 G	22 0 FPT -42.7C	13 0 145 (M/S)	9 0. 2 6. % 8E=04			AFML CIRRUS STUDY BY AFGL TO THE COMPANY OF AFGL TO THE
AFML GIRRUS E78-16 ON G& APF BULL-ROSE	DISTRIBUTIONS (N	CHU) PROBE (N	25 00 47 00 00 E+03	0.		169 0. 2533 169 0. 2538 169 0. 2538		271 4.96E+02 406 291 9.91E+02 475	1.988-01	127 AFML CIRRUS STUDW 9 E78-16 ON 04 APR 76 BULL-ROSE
FLIGHT	PARTICLE SIZE (SIZE SCANNER	(MU) PROBE	3 8.79E+07 5 3.69E+06	7 1.84E+06 9 1.32E+06				23 2.64E+05	INC 5.0uE-05	FLIGHT
Averaging 18129108	PRESS (#8) 293.43	ALT (KH) 9.31	T -44.310	FPT -42.90	TAS CHUS)	129.15 Z 3.23E-03	FORM F . 59	NT (N /Ne+3) 9-08 425-63		
SECOND SECOND	(NUMBER/N+5+HH) SIZE PRECIP (HU) PROBE		1011 0.09E-01 1316 0.	1622 0. 1927 0.	2733 0.	3843	4769 00.	00	9.19E-05 193	AFGL O SECOND STARTS
GULL-ROSE OF APR TO	DISTRIBUTIONS (NUMB SIZE GLOUD (MU) BRODE		1.24	5.936	2.48E	3 J M O J O	6.925+03 3.07E+03	1,36E+03 9,75F+02	1.595-03	50 50 80 80 80 80 80 80 80 80 80 80 80 80 80
AMPEA BULL	PARTICLE SIZE DIS SCATTER SI PROBE (H			7.88E+06				1.5316+06 311	2.15E-04 18	A FLIGHT E78-16 DN Type 9ull-40se
	SIZE	N M W	^ ~ ~	1 21	32	55 65	: 2 %	2	1¥C 4E0 0	

		,								
4VEK 4G ING 1830130		74.55 (M.9) 290.47	4Lf (KP) 9.38	7 -44-785	FPT -42.6C	TAS (NYS) 125.37	2 2. 20E-05	FORM F . 87	NT (N / Hee 5) 5+45/39E+02	21910
INTERVAL STARTS 18:30:30	(HW-	PRECIP	•			4 • ·		00	••	
INTERVAL	UMBER/H#1	S12E (4U)	437			2233 2538 2546	34.50	4065	+676	
SE	N) SHOTTONS	PROSE	3.415+04	2.545+03	1.285+03	6.815+02	•••	• • •		5.00r-nr
יייני מטנן אמספנ	E PISTRI	(MU)	4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 4 6 4 6 4 4 6 6 4 6 6 4 6 6 4 6		123	9 9 9	200 200 200 200 200 200 200 200 200 200	271		
	PARTICLE SIZE DISTRIGUTIONS (NUMBERFH*5-HH)	PROBE	3.26E+09 9.61E+07 1.67E+06	1.08E+06 5.37E+05	2.73E+05 0.	2.70£+05 5.30£+05	2.71E+05 2.68E+05	• • •	4.91E-85	
	SIZE	eur)	น คง	٠٥,	I 2:	3 4 8 2 4 8 3 4 8	13 21	2 5 6 2 5 6 3 6 6	INC C	4
	PRESS (NB) 293,54	ALT CKHI	7. 244.29C	FPT -42,70	7AS (#VS)	7 3.26E-03	FORM F .45	NT (N/Me+g)	7.74E-04	Ť
	PRECIP PRECIP	1.785.02	1 - 53E +00						1.465-04	***
	ONS (NUMBER/M*3-NM) LOUD STZE PRI RAGE (HU) DE	424	706 1011 1416							
	DISTRIBUTIONS () SIZE CLOUD (MU) PRARE	2+355+05	7.39E+03	2.18E+04 2.11E+04	104 277 9 9 4 7 7 7 9	9.49E+03 5.22E+03	2.32E+03 2.09E+03	1.315+03	6.285-04	
	SIZE (MU)	52	798	8 8 9	100	203	221	311		
	PASTICLE SIZE SCATTER PROBE	3.175.09	6 - 85E+ 06 4 - 22E+ 06 3 - 63E+ 16	1.325+46	2.372.06	7.90E+05 7.90E+05	7.91E+05 7.90E+05	1.056+06	1.10E-04 16	
	S12E (MU)	N FO	ω ← φ	##	39	322	23.53	ž	11 NC 0	

| Post cistorn Löndrein | Boselsborn ser Liber Scholeberhanistered achten er pat Kerienge der Geofen er Lepisco

PRESS (MB) 286.78	ALT (KM)	7 - 65.560	3	1960	125.70	Z 7.52E-66	FORM F1.80	NT(N/H++ 3) 1.5143E-01	707ALS 5.59E-07 191	Averaging 18632133	33	ALT (KH)	9.13	T -45.26C	FPT -43.50	745	, ~	6		FOR4 F0.80	HT (4 / H04 3)	TOTALS 0.	c
GHOUSE CER-5		00	00	~ c		2 69 6		000	5.596-07	T AFGL 30 SECOND STARTS	3-MH) PRECIP PROBE		<i>o</i> c		00	φ c	•	00	•	<i>o</i> c		•	c
S CNUMBERZH&S-		706	1016	1927	25.20	41.5	346	1000 1000 1000 1000 1000 1000 1000 100		STUDY 78 NTFRVA	(NUMBER/HUS-HH) STZE PR (PU)		434	101	1316	7007	2538	64 65 64 65 64 65	3484	3769	6.67 G		
JUN TON		••	60	.		•••	be.	•••	•	FML CTRRUS ON 04 APR SE I	SUTTONS CLOUD PRORE		ėė	ö		• 6		ċċ	•	é	: : :	÷	~
DISTR	50 % 13 %	67	108	\$2\$ \$4	1 11	500	2 C C C C	271 291 311	•	AFWL E74-16 ON Rull-Rose	E DISTRI'S SIZE (HU)		5 5 5 4	67	863	977	169	587 508	230	250	291		
PARTICLE SIZE SCAFFER	3.23E+89	8.79E+07	00	•					3,296-05	"LIGHT TYPE:	ARTICLE SIZE SCAFTER PROBE		2.99E+09	2	• •		2.87E+05		•			3.20E-09	~
SIZE	ê ~		~ •	# \$		9 99	£ 25	នៃន	INC 4ED D		984 3175 (MU)		N P	ינהי	~ 6 ;	13	: 3	22	S	ನ ನ	\$\$£	THE	4500
PRESS (MB)	ALT (KM) 9.43	1 45,320	FPT -42.60	10707	123.95	2 2.09E-05	FORM F .63	NT (N / H+ 3) 5.29 85E+02	101ALS 4.588-05	AVERAGING 18131130	ES S 26	ALT CKES	84 06	T -45.480	FPT -42.80	1745 (1476)	124.76	2 0.		FORM, FO. GO	NT (N / H++3) 0.	TOTALS	•
PRECED		•••				• •			;	AFGL C SECOND STARTI	3-MM) PRECIP PROBE		• •			• •			•	•		:	0
(NUMBER/M43	437							4065 4370 4676		STUDY BY 78 30 INTERVAL	(NUMBERFH#3- SIZE (#U)		707	101	225	1261	2536	2045 3145	4848	1760	4370		
THURIONS (NI	6.96E+04	9.13E+03	5.11E+03	1.295+03	; ; ;	9.825 + 42	: a		\$ Q= 2 & \$ \$ \$ \$	CIORUS O4 APR	IQUTIONS (HU GLOUD PROAE	,			;;;								•
SIZE	26 26	46	108	20 T	691	503	200	291 311		A * WL F78-16 ON BULL-405E	OISTRI SIZE (MU)	;	9. 2.	29	100 000 000	0 4 0 47	169	503 503	230	271	311		
PANTICLE SIZE SCATTER	3.28£+09	9.15E+07 1.37E+06	1.646+06	1.47E+06	5-576+05		2.735.05	0. 2.74E+05 0.	5.64E.05	FLIGHT	ARTICLE SIZE SCATTER PROBE		3.20E+09 8.97E+07	•				•••	•	• •	••	3.246-05	•
_						199			ė		ď										£25	•	5

And The Market Control of the Contro

PRESS (MB) 287-16		83.45	T 44.0	•	FPT -44.10		(AS (PES)	•	2 4, 916-05	* 1000		HTCH/Hee 31	204365 66 46	TO14LS 5. 33E~05 69	averacing 16e34130	PRESS (MB)	٠.	44.1 9.46	:	7 -15,51C	FPT -444.30		TAS (MS)	147.12	Z 2.06E-04	\$084 F . 19	•	NT(N/Hebb)	TOTALS 6.17E-15
(1		•	00	•	-	D 6	• 0	•	•	-	9 0		•	5.56E-07	AFGL SECOND TARTS	TTT (TTG	FROBE	6.515-01		•	• •					• •		. .	5.568-07
CNUMBER/HES.	ŝ	484	101	1716	1622	1927	2538	2843	3149	4444	40.00	477	2		S STUDY AY R F B 3d Interval S	PERFER.	5	437	106	1101	1622	1927	223	2043	37.5	# 60 A A A A A A A A A A A A A A A A A A	4969	4370 4676	
FUTTONS CAL	FKOBE	å	: 6	2.505+03	8.525+03	2.085403	0		1.038+03	•			:	5.28F-US 69	CIRRUS DA APE	OISTRIUTIONS (MUMPERCHUS SIZE GLOUG SIZE	PROBE		1.795+04		3,395+03	•	0.000		•	: .	2.915.02	9.02E+02 1.09E+03	6.12E-85
DISTRY		\$	7 9	10	60 t	0 4	691	661	600	2 60	272	162-	;		AFML 878-16 ON 8011-405E		905	26	Ç,	\ *	106	126	9 4 4	697	602			311	
PARTICLE STRE SCAFFER PROME	F S	0 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	2.698+05	2.47E+05	9	2.67E+BS	•	ġ,	0. 2.4664.08	•	•	. e	•	3.615-05	FLIGHT	ARTICLE SIZE SCAFTER	PR ONE	3.04F+449	1.065+00	2.645+05		2.67E+15	•	:	•	:-	ċ	27 B.	3.275-85
\$1.2E CHU	î.	~ ~	9 er	~ (~ =	: 2	3	2:	3 0	ಣ	2	\$ ≈	;	TAC TEO O		PA SX2E		~:	P) 4	n >-	<u>.</u>	#	4 4	2	3:	ដ	2:	52	TKC O
PRESS (MB) 287.35	ALT (KM		1 -45.840		1 - 1 - 1 - 1 - 1 C	TAS (MS)	~	•	68-365 *6 7	FORM F . 67		NT (N / K+ 10)	2.4207	3. 15 E	verlent 6 eugeug	PRESS (M8) 267.76	ALT (KM)	4.6	4.00	704.04	FPT -44.00		127.18	,	2 2. 686-05	FORM F		2.6992E+02	80FALS 3. 866-39
1. 大元 3 年 4 年 5 年 5 年 5 年 5 年 5 年 5 年 5 年 5 年 5	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7			•	• •		-	•	• •					•	Y AFGL 30 SECOND AV START: 10	PRECIP	FROBE	6.48E-01	•		•	•	•	•			•	::	5. ShE-87
CECEBERATE ON THE ONE COLUMN	Š	100 h	101	1316	1927	22.83	2538	7.1 10.1 10.1	1 to 4	3460	4063	4470	•		STUDY AY 76 36 147ERVAL:	CHE-M+H/ENGFON)	5	121	90,	1316	1622	1927	25.33	2843	444	3769	4700	1676	
TRUTTONS (NUI GLOUD BROAK	100	: -	4.196.03	2.435.003	1.095.003	9.90E+02		4.79E+02	1.085 + 63		•	•••		3.15E-05 82	C1000000000000000000000000000000000000	PUTTONS (NUM	3604	3.395.04		4.995+03	1.696+03	3.76 . 6.3	1.636+83	•	•			::	3.6005
377.18. 17.26 HU)		, ç	5	26		1 7	169	6 0 7 0 7 0	2 C	200	271	291 311			AFEL 678-126 OX 9ULL-ROSS	DISTR										230			
250				5	2									E-05	FLIGHT Types	PARTICLE SIZE SCATTER	ď	046+09	20.2	.338+105				•	60+39				346-69
ARTICLE SIZE DIS SCATTER SI PROSE	7 PO L	1.205+69	9 . 33E+0	5.356	2 + 00E.	: :	ė	ė.	•	:	ċ	-:	:	3,21	# p-	SCAT		70.5				•		•	٠.	:		:	A. 34

AFNL CIRRUS STUDY BY AFGL FLIGHT F78-16 ON D4 APR 76 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 16:36:00 AFHL CIRRUS STUDY BY AFGL FLIGHT E78-16 ON 04 AFR 78 30 SECOND AVERAGING 14PER BULL-ROSE INTERVAL START: 1853580

PRESS (MB) 286.12	ALT	7. FG	769.54- 1		FPT -44.4C	1770 / 17661	•	134.30	7 1. 0 AF-03	1	FORM F . 47		NT (N / Hee 3)	2.90 60 E+03	101ALS 5 4.35£-04 73	AVERAGI4G 18:36:33	PRESS (NB)	286.38	ALT	1 9.47	T -45.720		FPT -44.2C	TAS (HVS)	131,66	7 7. 666-81	*0-330 * / 7	FORM F .64	NT CN / MRR 21	1,63416+03	Totale
3-MK) PRECIP		5.045+01			0	- •	-	5 6		•		0			4.47E-05 194	/ AFGL 30 SECOND STARTE	3-HM)	PRESIP		1.70E+01	0	0	•	. 0	-	• •	•	0			
HBER/H*		151	101	1316	1622	1921	2633	6565	407	454	3750	4965	4770	9297		۾ ۽	HOERFH*	STZE	;	704	101	1416	1927	2233	2538	2843	3454	1760	4065	4676	
STIONS (NUMBER/M*3-MM)	TRUBE	1.5555+05	4.08E+03	1.21E+04	2.645+04	20#2E#04	1.0000404	3.1/2403	1017111	2,050,030		2.145+02	4.29E+02	3.25E+02	.3.90E-04	CTORUS 04 APR	OISTRIBUTIONS (NUMMER/M#3-HM)	FLOUD P.OBF	3604	9.83E+04	1.216+04	9.65E+03	1.80E+04	4.78E+03	3.945+03	6.80E+03	3.86F+83	2.26E+03	C 0 4 1 7 7 * T	5.78E+02	
DIS (RI SIZE	(OH)	22	2	87	108	9 2 3	140	504	707		200	271	291	311		E78-16 BULL-9				5 7 7	67	24	108	95	169	1000	230	250	271	311	
PARTICLE SIZE SCAFFER	L	2.95E+09	3.112+06	3.11E+06	2.33E+06	2.335+06	1.505+06	2.872.95	1.045405	CD 4 10 7 4 7	1 . 0 45 + 0 5	1.045+06	3.12E+06	7.80E+u5	2.15E-04	FLIGHT	ATICLE SIZE	SCATTER	2	3.075+49	2.32E+06	2.58E+06	1.03E+06 5.16E+05	1.03E+06	2.58E+05	0.466446	2.56E+05	5.15E+05	•	2.58E+05	
SIZE	(140)	2 •	o un	^	σ:	7	77	å:	9 \$	9 5	7 7	: 23	52	27	INC HEO O		3	SIZE		~ ~	. w	•	٠ :	1 2	#	9 4	3 3	72	25	36	
PRESS (MB) 286.36	ALT (KH)	24 ° 6	1.0.040	210	FPT -44.40		TAS (M/S)	128.42		2 1.75E-05	١	FORM F . /3	NT (N / N+#3)	3. F461E+02	4 JALS 3. 41E-05 52	AVERAGING 18:35:30	200	286.21	ALT CKM		T - 45-67C		FPT -44.50	13/77/ 374	129,62		2 3. 00E-05	FORM F . 69		AT (N/Me=3)	
HN) PRECIP	PROBE	6.46E-01		•	•					9.		•	•	• •	5.52E-07	9V AFGL 30 SECOND AVE 11 START: 188	į	PRECIP	PROBE	6.36E-01	•	• 6			• • • •		•	• •		• •	•
CNUMBER/M#3-MM3 SIZE PR	CHC	43.1	106	1011	1622	1927	2233	25.38	2843	3149	1454	3760	4065	4676		Ψ. ₹		IS (NUMBER/M*3-MM) ND SIZE PR	3	437	706	1101	1622	1927	2538	2843	3149	3426	4065	64340	0
	PROPE	6.72E+04	6.82E+83	•	00+126**	2.49F+83	Q. NOF + B2				•		. .		3.35c-05	CIPPUS U4 APR		OTIONS (NUM CLOUD	PROBE	6.645+04	1.75:+04	7.	4.98E+03	3.695+03	ė	•	9.396+02	•			•
DISTRIGUTIONS	SE	26	!	67	6 0 6	7 7	2 4 4	1	644	606	230	250	271	311		A=W_ E78-16 ON BULL-ROSE		DISTRIBUTIONS SIZE CLO	(AR)	56		29	134	128	# # # #	189	209	230	2 7 7	294	311
PARTICLE SIZE		A. DAFEBO	9.15E+07	2.63E+05	2.64E+05	1.005+00	:		2000	i d		•	2.645+45	•••	3.72E-05	FLIGHT TYPE:		PAPFICLE SIZE	PRUBE	2.97E+89	1.03E+08	1.83E+06	2.01E+07	9.	0.40	7.845+05	0	•	• •		•
														23				2	i î						۸.	* 4	n 40	5		. 10	

erese entracherente beleinen behorter feste feste personalität sen entracherente

AFML CIRRUS STUDY BY AF	FLIGHTI E78-16 ON 04 APR 78 36 5	TYPE : BULL-ROSE INTERVAL STARTS	
	AVERAGING	18137100	
IRRUS STUDY BY AFEL	PLICHT ET8-16 ON 04 APR 78 38 SECOND AVERAGING	INTERFAL START:	
AFML CI	LIGHT E78-16 ON 04	YPE BULL-ROSE	

AVERAGING 18:38:08	PRESS (MB) 264-11	ALT (KT)	26 - 8	T -46.15C	FPT -43.40	TAS (MYS)	130.68	7 4. 795-03		FORM F . 47	NT (N / H++3)	TOTALS 3.50E-04	AVERAGING 16:36:30	PRESS (MB) 283.84	ALT (KN)	9.53	T -46.16C	CDT att.		(MS (MS))		2 1. COE-US	FORM F . 42	NT (N /Mee 3)	8.7162E+02	TOTALS 2.75E-04 122
T AFGL SG SECOND STARTE	3-NN) PRECIP	•	2.006+00		00		0	90		0	300	9	AFGL Second Farts	-MA) PRECIP	PROBE	1.15E+02	• • • •	•		•		• •		• •	•	9.25E-05 194
FO STUDY BY	(NUMBER/M+3-KM) Size PR		706	1111	1622	2233	2538	3149	3454	3760	4370		JOY -	TRUMBER/H*3.	5	F 444	1011	1316	1927	2538	2843	3454	3760	4370	4676	
04 40 A 40 R 4 8	DISTRIBUTIONS (NUI SIZE TLOUD	100 L	1.73E+04	•	6.59E+03	2.88E+03	1.585+03	7.47E+03	3.095+03	2.275+03	4.28E+02	2.815-04	CIRRUS 04 APP	SIZE CLOUD	100%	9.656+04		1.475+04	4.855+03	7.90E+02	1.705+03	1.01E+03	0.060400	1.056+03	7.745+02	1.82E-04 85
FLIGHTI E78-16 OK TYPE: BULL-ROSE			34	9 6	108	1 4 6	169	209	230	250	23,53		AFWL E78-16 ON BULL-ROSE	OISTRIE SIZE		5 5 7	67	108	129	169	189	230	250	291	311	
FLIGHTI TYPE:	PARTICLE SIZE SCATHER POOR	3.255400	L . 8 6 E + 0 6	1.55E+06	7.76E+05 2.60F+05	5.18E+05	1.046+06	2.58E+05		. 39E+05	5.20E+05	5.26E-U5 2	FLIGHT	RTICLE SIZE SCATTER BOORE	300	3.175+89	2.57E+06	1.28E+05	5.15E+05		2.58E+05 2.57E+05	.0	2.58E+05	2.57E+05	•	4.39E-05
	SIZE	•	J PO U	n r-	6 11	77	3	9	13	2.5	388	INC YED O		PA: SIZE CHIII		K) F	· ທ 1	~ 6	#\$	14	19 19	13	5 8	38	23	INC VEO 0
	- 4						_			_				- 1	ا چ	N	ပ	G	_	. 40		,		_1	<u> </u>	のき
RAGING 137100	PRESS (MB) 284.74	ALT (KN)	30.37		FPT -43.70	TAS (NVS)	128.83	Z 6.87E-04	1	FORM F . 56	NT (N / H*# 3) 6.2106E+02	TOTALS 1.90E-04 122	.RAGING 137130	PRESS (MB) 284-17	ALT (KH)	25 •6	1 -46.160	FPT -43.30	TAS CHUS	129.18	Z 6.22E-04		FORM F .TS	NT (N/H++3)	1-18 306+03	3.15E-04 3.15E-04
AVERAGIN 18:37:00	ECIP ROBE	<u>.</u>		•	141	. TAS	•	•9 2	•	FORM F		TOTALS 1.64E-05 1.90E-04 191 122	AFGL O SECONO AVLRAGING Start: 18:37:30	PRES	ALT	5.10E+50 9.5		FPT	TAS			•		. •		#0#AL 6.36E-06 3.15E-9 191 . 91
START: 18:37:00	ECIP ROBE	1 . 92 E+01			141	0. TAS	•	0. 2 6.	• 0	G. FORM F		.64E-05 1.	TUDY 9Y AFGL 8 30 SECONO AVERAGING TERVAL START# 18:37:30	PRES	ALT	5.10E+90	-	D. FP1	70.		2	•	• •		1.1	ન .
OC APR 70 38 SECOND AVERAGIN	UTIONS (NUMBER/M*3-MM) CLOUD SIZE PRECIP PROSE (MU) PROSE	14 437 1.92E+01	0E+03 706 0+	1316 0.	4E+03 1622 0. FPT 8E+03 1927 0.	1F+03 2233 0. TAS	0E+03 2538 0. 1	3149 0	5E+03 7454 0.	3760 G. FORM F		.64E-05 1.	IL CIGRUS "TUDY BY AFGL 1 04 APR 76 30 SECONO : INTERVAL START\$	(NUMBER/N+3-MH) PRES SIZE PRECIP (MU) PROBE	ALT	335+04 437 5+10E+90 -45+03 705 0.	1011 00	10E+03 1622 0. FPT	30E+03 1927 0.	10E+03 2538 0.	. O . O	17E+03 3454 0.	15E+03 3760 d. 13E+03 4065 D.	31E+02 4370 0.	39E+#2 4676 U· 1.18	ન .
OC APR 70 38 SECOND AVERAGIN	ECIP ROBE	10+23+E+0t	8-905-03 705 0-	1316 0.	1.64E+03 1622 0. FPT 6.18E+03 1927 0.	3.91F+03 2233 0. TAS	1.60E+03 2538 0. 1	0. 3149 0. Z 6.	1.055+03 7454 0.	G. 3760 G. FORM F 5.12F+02 4865 G.	25+03 4370 0. 5E+03 4676 0.	42-04 1.64E-05 1. 114 191	ACHL CIRRUS CTUDY 97 AFGL E78-16 GN 04 APR 78 30 SECONO BULL-ROSE INTERVAL START#	DISTREBUTIONS (NUMBER/M+3-MM) SIZE GLOUD SIZE PRECIP (HII) 9808F (MU) PROBE	ALT	6.63f+04 437 5.10E+00 8.7+F+03 706 0.	1011 0.	8.30E+0? 1622 0. FPT	4.90E+03 1927 0. 6.76F+03 2233 0. TAS	4-80E+03 2538 0.	75E+03 2643 0.	5.17E+03 3454 0.	1.15E+04 3760 0.	9.31E+02 4370 0.	8,39E+82 4676 0. 1.18	6.36E-06 J.
4 APR 76 34 SECOND AVERAGIN	SUTIONS (NUMBER/M+3-MM) CLOUD SIZE PRECIP PROME (MU) PROBE	26 3.345+04 437 1.925+01	12E+08 47 8-90E+03 706 0.	32E+05 87 0. 1316 0.	05E+06 108 1.64E+03 1622 0. FPT 80E+05 128 6.18E+03 1927 0.	23E+05 146 3.91F+03 2233 0. TAS	33E+0% 169 1.60E+03 2538 0. 1	209 0. 3149 0. 2 6.	230 1.052+03 7454 0.	22E+05 250 0. 3760 0. FORM F 8EF+05 271 6.12F+02 4068 0.	311 2,055+03 4576 0.	42-04 1.64E-05 1. 114 191	CML CIRRUS STUDY BY AFGL GN 04 APR 76 30 SECONO SE INTERVAL START:	SUTIONS (NUMBER/M+3-MM) CLOUD SIZE PRECIP 9808F (MU) PROBE	ALT	26 6.63F+04 437 5.10E+00 47 8.7+F+03 706 0.	67 0. 1011 0. 1 -	108 8,30E+03 1622 0. FPT	128 4.90E+03 1927 0.	169 4.80E+03 2538 0.	169 7.75E+D3 2643 D. 209 3.77E+D3 3149 D. 2	230 5-176+03 3454 0.	1.15E+04 3760 0.	.60E+05 291 9.31E+02 4370 0.	• 311 8,39E+n2 4676 U• 1•1M	6.36E-06 J.

AFML CIRRUS STUDY BY AFGL

AVERAGIÀG 18140100	PRESS (MB) 283.44 AL1 (KH)	9,54	FPT -44.7C TAS (MS) 133.74	Z 1.69E-03 FORM F .68 NT(N/M**3) 1.0604E+03	TOTALS 4,746-04 118	AVERAGING 18:40:33
O.N.O.₽	*M4) PRECIP PROBE	2.65E+01 0. 0. 0.			2.27E+05 191	0 × 0
₹ A	SIZE SIZE (MU)	437 706 1011 1316	1622 1927 2233 2543	11149 14554 14760 14370 16370		STUDY BY AFGL 78 BP SECO
O4 APR	OISTRIBUTIONS (NUMBER/N#3-MM) SIZE CLOUD SIZE PR (MU) PROSE (MU) P	3.225+04 1.705+04 0. 2.375+03	3.22E+03 1.20E+03 0.	5.025403 4.456803 4.125403 3.806403	4.51E-04 117	CIPPUS 04 APP
E78-16 ON BULL-RO'.		26 47 67	0 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	2002 2002 2003 2004 2004 2004 2004 2004		A = W. FLIGHT: E78-15 ON
FLIGHT	PARTICLE SIZE Scanter Probe	3.24E+09 1.09E+08 3.55E+06	1.52E+06 5.07E+05 5.06E+05 1.01E+46	7.60E+05 5.07E+05 7.60E+05 5.07E+05	6.86E-05	FLIGHT
	PAS SIZE (MU)	สมเท	· 6 ጟ 월 출 \$	25.22 25.22	IH VED D	
AVERAGING 18:39:80	PRESS (48) 283.64	9 7	FPT -44.1C TAS (MS) 133.54	Z 8.25E-04 FORM F .35 NT(N/M**3) 5.2018E+02	#0TALS 1.20E-04 124	RAGING
9	-MM) PRECIP PROBE	5.74E+01 4.91E-01 0.			4.38E-05 194	TUDY BY AFGL
EPV AL	(NUMAFR/M#3-HH) Size PR (HU) P	437 706 1011	1622 1927 2234 2538	2000 3100 3100 3100 4100 4100 4100 4100 4		TUOV 9Y
4 A PR	~ w	0. 6.50E+03	4.84E+03 4.78E+03 9.43F+02 7.74F+02	6.37 ° +0 2 0.0 ° +0 2 1.0 0 € +0 3 7.0 9 € +0 2 4.18 € +0 2 3.18 € +0 2	7.63E-05	CIRPUS
E76-16 GN 0 BULL-ROSE	DISTRIBUTIONS SIZE CLOU((MU) PRO91	26 47 67	4444 647269 999899	2000 2000 2000 2000 2000 2000 2000 200		A54L 578-16 ON
FLIGHT TYPE 4	PARTICLE SIZE SCATTER PROBE	3.186+09 1.826+08 2.286+06	1.27E+06 0. 1.02E+06 2.53E+05 7.61E+05	2.54E+05 5.07E+05 2.53E+05 0. 0. 2.55E+05	6.77E-05	FLIGHT
	ະະ					

FRESS (MB) 283.41	ALT (KH)	9.54		T -46.16C	;	26***- 1ds		TAN CHAN	133,62	:	2 3.72E-05		FORM F . bb		S L C C C L S L S C C C C C C C C C C C	2.75±8E+02		TOTALS 3.49E~05 83
MM) PRECIP		9.	•		•	•	•		•	•	•	٠	•	•	•		•	٠
SI75	}	437	706	101	1316	1627	1927	2233	2538	2843	2149	3454	3760	4065	4379	4676	•	
OISTRIBUTIONS (AUMPER/H#3-MM) SIZE CLOUD SIZE PR		•	8.462+03	•	•	•	ċ	•	1.555+03	2.50E+03	9.10E+#2	ė	ċ	ċ	•	c	•	3.49E+05 83
OISTRI SIZE		56	47	67	87	108	128	148	169	189	209	230	250	271	291		110	
PARTICLE SIZE C	FKOOF	3.295+09	1.06E+08	•	5.ü6E+05	2.536+05	•	•	•	•	5.05E+05	2.53E+05	0.	•	•		•	3.96E-05
PA SIZE	ô	^	M	r.	^	σ	11	75	*	16	91	13	12	23	2,2	;	12	INC HED D
PRESS (MB) 283.66		AL 1 (A.7)	2	1 -46.160		FPT -44.4C		TAS (HVS)	133.60		Z 3.32E-03		FORM F . 52		NT (N / Ree 3)		9. 70 63E+02	TOTALS 4.86E-04 129
-MM) PRECIP	PROBE	2 24 5 402	4.01F=04				•			: -			•			•	•	1.62E-04 192
FERZH#3	<u> </u>		107	7 7 7	1316	1622	1927	22.13	25.30	2843	34 60	1571	3760	5907	7470		4676	
SUTTONS (NUM	PROBE		3041726			1,615+03			;	A. TAFAN2	2.73F + 03	1.00F+03	4-465+03	3.87E+03	207332-1	20000	2.30F+03	3.24E+04 119
DISTPI	Ĵ	è	9 10	, ,		0 0	128	4	4 +		10	- E	250	274	000	100	311	
PARTICLE SIZE DISTPIGUTIONS (NUM'ER/M*3-MM) : SCATTER SIZE CLOUB SIZE PR	PR08E		3.1/5.09	1.000	1.275+06	5.075+05	1.27E+06	5.07F40E	2.54F405	0 75405	5.075+05	2.547405	5.06F+05			:	2.53E+05	5.39E-05
PA SIZE	SH.	•	Nt f	า ย	4 11	- 0	, =	::	1 -		9 =	9	7		;	C	27	INC

ķ

AVERAGING 18642888	28	ALT (KND 9.55	T -46.36C	FPT -44.7C	TAS (NYS)		Z 5.38E-06	FORM F .96	NT (N / H== 3) 3.92 64E+01	TOTALS 7.33E-06 75	AVERAGIVG 18:42:33	PRESS (#8) 282•76	ALT (KH)			FPT -43.8C	1AS (M/S)	°0 Z	FORM FO.80	NT (N / H++ 3)	TOTALS 0. 8
STUDY BY AFGL TO 30 SECC.) INTERVAL STARTS	(NUMRER/N*3-HM) SIZE PRECIP (MU) PROBE	0			-	•	00			•	JDV SY AFGL 30 SECOND ERVAL START:	(NUMG-R/M*3-MM) D SIZE PRECIP		000			00			000	•
AFNL CIRRUS S' E78-16 ON O4 APR T BULL-ROSE IN	DISTRIBUTIONS (NUM) SIZE CLOUD (MU) PROBE	0 92				169 /•59E+02 189 0.	7	. 0	-291 J. 311 D.	7.33E-06	A ^F WL CIRRUS ST1 E78-16 ON 04 APP 76 BULL-POSE INT	DISTRIBUTIONS (NUM SIZE FLOUD	3-04- (01)	•	97 00	96		2099 000		291 0. 311 0.	•
FLIGHT! E74 TYPE: BUI	PARTICLE SIZE Scanter Probe	3.09E+09	1.05E+08 0.	•	• • •	2.48E+05	•	• •	23 G.	: 3+34E-05	FLIGHT E70 TYPE: BU	PARTICLE SIZE SCAFFER	San Ma	3 1.00E+08	7 00.	· ~ e			900	25 U• 27 2• 47E+0 5	3.97E-05
AVERACING 10s41:80	PRESS (MB) SIZE 283.40 SIZE (MU)	ALT (KH) 9.54	T -46.16C			134.63	2 4.046-04 1	FORM F .74 2	2 NT(N/M**3) 2 1.2337E+03	TOTALS 2, 75E-04 INC 62 4E0	AVERAGING 18:41:30	PRESS (MB) 5175	ALT (KH)	9° 5¢	1 -46.250	FPT -44,90		1,35,65 2 2,94E-04 1	FORM F .74	NT (N/Me#3) 3.61.30E+02	1.27E-04 INC 88 4E0
BY AFGL 38 SECOND IL SYARTE	(NUMBER/K*3-MM) SIZE PRECIP	437 7.36E+80	• •		927 0. 233 0.	0 =			4065 0. 4470 0.		RY AFGL 30 SECOND L START:	(NUMBER/H#3-MM) SIZE PRECIP	MU) PROBE		e c		90	000	00	4865 8. 4370 8. 4676 8.	1.56E-01
AFWL CIRRUS STUOY 9 6 ON 94 APR 78 ROSE INTERVAL	SHOLLONS	•	A.42E+03	2,35E+03 6,41F+03	0.30E+03 1.03E+04	7.696+03	4.536+03	3.39E+0? 1.11E+03	 E O d	2.69E-04 82	AFML CIORUS STUDY P F on 04 APR 78 Rose interval	BUTIONS GLOUD	#R03E	••	0.	0.000	1.047.403	2,295+03 5,765+03 2,695+03	•••	2.34E+02 4.69E+02 9.38E+0?	1.255+04 87
AFWL FLIGHT E78-16 ON Rypes Oull-Rose	PARTICLE SIZE DISTRIC SCATTER SIZE								0. 271 5.03E+85 291		AFHL FLIGHT E78-1% ON TYPE: BULL-ROSE	PARTICLE SIZE DISTRI								0. 271 0. 291 0. 311	3.66E~45 2
	PA	§ ~	** to	, - - 0	#4	4	9 9	61 73	22 53	TEC D		PA S125	S E	NM	w.	۰.	12	3 9 8 3 7 7	5 72	222	TWC MED D

AFWL CIRRUS STUDY BY AFGL	FLIGHT'E78-16 ON O4 APR 78 10 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18844180	
AFM. CIRRUS STUDY BY AFGL	FLIGHT F78-16 ON O4 APR 76 38 SECOND AVERAGING TYPE: BULL-ROSE INTERFAL START: 10:43:00	

PRESS (MB) 282.57	2.5 2.5		T -46.05C		FPT -44.2C		TAS (MVS)	140.04		Z 5.09E-03		FORM F . 36		NT (N / N*#3)	7.77 576+02	7.07ALS 3.73E-04 124
-MM) PRECIP PROBE	1.316+02	1.22E+01	•	•	•	•	•	•	•	:	•	•	•	•	•	1.68E-04 218
AER/H+3 SI ZE (HU)	437	766	1011	1316	1622	1927	2233	2538	2843	3149	3454	3760	4065	01.7	4676	
BUTIONS (NUM BLOUD PROBE	6,155+04	8.07E+03	ċ	•	6,45E+03	.	5.39F+03	1.485+03	3,996+03	6.975+03	1.91E+03	1.060+03	6.97E+02	4.562+02	3.64 . +02	2.u5E-04 91
DISTRI Size (HU)	56	44	29	87	108	128	148	49	. 19	209	230	250	271	-291	311	
PARTICLE SIZE DISTRIBUTIONS (NUMPER/H+3-MH) SCATTER SIZE DLOUD SIZE PR FROBE (NU) PROBE (MU) P	3.09E+09	1.13E+08	1.21E+06	6 • 83E+05		•	2.416+05	•	.		:	•	•	2.42E+05	•	3.76E-05
812E (MU)	~	m	'n	~	6	#	2 7	* :	16	10	13	7.2	5	52	23	INC JED 0
PRESS (48) 262.71 ALT (KH)	9.55		7 -46.41C		FPT -43.40		TAS (HVS)	137.48		2 D.		FORM FO.00		いたくとくともの	÷	TOTALS 0.0
EC1P ROBE	9.55	•	0. 7 -46.410	•	0. FPT -43.4C	•			••	.~			•0	20:	*	0. 0. 0. 0
EC1P ROBE	•	•		•	1622 0. FPT -43.4C		•	•			•	•	•	***	•	TOTALS O O O O
NS (NUMBER/M®3-MM) OUD STZE PRECIP NBE (MU) PROBE	6 7 T	706 0.	101 0.	131, 0.	•	1927 0.	2233 0.	2538 0.	2843	3149 0.	3454 0.	3760 0.	4465 0.	£ 170 0.	4676 0.	0. 0 0. 0 0. 0
NS (NUMBER/M®3-MM) OUD STZE PRECIP NBE (MU) PROBE	6 7 T	706 0.	101 0.	131, 0.	1622 0.	n. 1927 D.	0. 2233 0.	0. 2538 0.	0. 2843	0. 3149 0.	3454 0.	3760 0.	ŋ. 4n65 0.	0. 6470 0.	0. 4676 0.	
(9UTIONS (NUMRER/M•3-MH) CLOUD SIZE PRECIP BROBE (NU) PROBE	6 7 T	706 0.	101 0.	131, 0.	0. 1622 0.	n. 1927 D.	0. 2233 0.	0. 2538 0.	0. 2843	0. 3149 0.	3454 0.	3760 0.	ŋ. 4n65 0.	0. 6470 0.	0. 4676 0.	

Pars Care	282,54		ALT CKM	9.56		7 - 46.39C		FPT -44.8C		TAS (MES)	139,11		2 5. 46E-02		FORM F . 24		NT (N /Hee 3)	9.87 416+02	TOTALS 9.29E-04	503
-84	PPECIP	PROBE		5.116+02	4.67E+01	9.90E-01	1.045+00	5.51E-01	•	•	•							•	7.336-04	922
BERYMES	STZE	(AC)		437	706	1011	1716	1622	1927	2233	2E38	2843	3149	3454	3760	4065	4370	9297		
HAND SNOTTH	SIZE CLOUD SIZE PRI	3609		•	2.445+04	3.83£+03	•	•	9,	9.02c.+02		3.22E+03	1.755+03	1.935403	1.075+03	1.41E+03	1.865+03	1.55E+03	1.965-04	1
		OH.)		56	47	67	87	108	128	149	169	189	209	230	250	271	291	311		
PARTICLE SIZE	SCATTER	PROBE		3.01E+09	1.116+08	1.22E+06	1.46E+06	4.87E+05	9.75E+05	2.44E+05	7.32E+05	7 • 32E+05	4 . 88E+05	;	•	2,446+05	4.672+85	2.44E+05	5.78E-05	י
PA	SIZE	SH.		61	m	2	~	ው	11	75	\$1	1 6	10	13	12	23	22	27,	THC 504	5
PRESS (#B)	282,52		ALT CKN	9.56		1 -46.09C		FPT -43.70		TAS (H/S)	139,45		Z 3.96E-04		FORM F .16		MT (K/M**3)	2. 80 54E+02	3.22E-05	
	ECIP	ROBE	¥Ľ⊥	8.72E-01 9.56		-	•0	0. FPT -43.7C	•0		0. 139.45	••	0. Z 3.96E-04	••	0. FORM F .16		D. NT(K/M**3)	0. 2.80 54E+02	TOTALS 7.40E-06 3.22E-05 301 47	
	ECIP	ROBE	¥Ľ⊥	8.72E-01	1.41E+00	٠.	•	1622 0. FPT -43.7C	•	O. TAS	.0	;		•	•	,	•	•		
	ECIP	ROBE	¥Ľ⊥	437 8.72E-01	706 1.41E+00	1011 0. T	1316 0.	ċ	1927 0.	2233 0. TAS	2538 0.	2843 0.	3149 0.	3454 0.	3760 0.	4065 C.	4170 0.	4676 0.		•
	ECIP	ROBE	¥Ľ⊥	437 8.72E-01	706 1.41E+00	7.60E+03 1011 0. T	2.26E+03 1316 0.	1622 0.	0. 1927 0.	0. 2233 0. TAS	0. 2538 0.	8.02E+02 2843 U.	0. 3149 0.	3454 0.	0. 3760 0.	0. 4065 C.	0. 4470 0.	0. 4676 D.	7 • 10 E = 3.0 3.0 E = 3.0	•
		ROBE	¥Ľ⊥	437 8.72E-01	47 0. 706 1.41E+00	7.60E+03 1011 0. T	87 2,26E+03 1316 0.	108 3.095+03 1622 0.	0. 1927 0.	148 0. 2233 0. TAS	0. 2538 0.	189 8.02E+02 2843 U.	209 0, 3149 0.	3454 0.	0. 3760 0.	0. 4065 C.	0. 4470 0.	0. 4676 D.	7 • 10 E = 3.0 3.0 E = 3.0	•

AFWL CIRPUS STUDY BY AFGL FLIGHT E78-16 ON O4 APR 78 30 SECOND AVERACING TYPE: BULL-ROSE INTERVAL START: 18443330

AFUL CIRRUS STUDY BY AFGL FLIGHT E78-16 JN 04 BPR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTFRYAL START: 18144:33

AVERAGING 18+461u0	PRESS (MB) 282.45 ALT (KH)	9.56	FPT -43.9C	TAS (H/S)	7 3, 145+85	28	#4/ 306	YOTALS 9.006-03 354	AVERAGING 18146130	55 28	ALT (KN) 9.56	T -46.87C	FP1 -43.40	TAS (M/S) 137-10	2 1.432+00	FORM F .16	NT (N / N*+3) 2-9586E+03	TOTALS 5.98E=03 329
9Y AFGL 30 SECOND AW L START: 18	S-MK) PRECIP PROBE	2.13E+03 5.24E+02 5.17E+01				00	000	8.39E-03 370	AFGL 3 SECOND START:	3-MM) PRECIP PROBE								5.35E-03 357
OV 9	(NUMBERZH#3-MM) SIZE PR (MU) P	437 706 1011	1316	2233	2843	3454	4065 4370 4676		STUDY BY 78 31 INTERVAL	49 ER/ N*3 - NH) SIZE PRE (HU) PF	437	1011	1422	223	3169	3760	4370	
FML CIT	UTIONS CLOUD PROBE	2.51E+05 6.60E+04 7.74E+03	1.15E+04 4.55E+04	1.465+04	3.26E+63	1.09E+03	2.23r.03 4.55E+03 4.10E+03	6.14E-04 74	CIRRUS Of APP	SUTIONS (NUMB CLOUD PROBE	1.57E+05	3.078+04	2.67E+04 5.98E+04	5.49F+03 3.78F+03	9.015.03	20 P P P P P P P P P P P P P P P P P P P	3.92E+03	6.38E-04
AFML E78-16 ON Bull-Rose	DISTRI Size (MU)	26 47 67	108	9 5 5	183	230	271 291 311-		AFWL E78-16 ON Bull-Rose	OISFRI SIZE (MU)	92	67	907	8 6 6 3 4 4 1 4 4	600 100 100 100 100 100 100 100 100 100	220	311	
FLIGHT T#PE 1	PARICLE SIZE Scaffer Probe	2.41E+09 1.29E+08	6.68E+06	1.97E+06	2.716+06	7.41E+05 9.87E+05	1.23E+06 1.97E+06 1.48E+86	1.66E-04 20	FLIGHT (YPE)	PARTICLE SIZE E SCATTER PROBE	2.435+09	1.20E+08 1.16E+07	5.19E+06	3.22E+06 2.23E+06	7.41E+05	1.736+06	2.47E+06 9.89E+05	1.65E-04 21
	SIZE (HU)	N PO 50	~ 6;	121	145	5 2	22 22	1WC 4ED D		SI ZE CMU)	~	ω ν ι	· m -	នង:	2 2 2	2 X X	388	11 KG 4 KG 1 KG 1 KG 1 KG 1 KG 1 KG 1 KG 1 KG 1
eraging 145:80.	PRESS (MB) 282.57	95.6		TAS (M/S)	130.16			TOTALS 1.60E-03 215	ERAGING 845:30	88 88	AL1 (KH) 9.56	1 -46.540	FPT -44.50	TAS (NVS) 137.24	Z 3.44E-01	FORM F .22	NT (N / H** 3) 1.57 23 E+ 83	107ALS 2.74E-03
AFGL B Second Averaging Start: 18:45:80	PRES CIP OBE ALT	· ·	. 44	TAS	,	FORM	0 NT (N/H**3) 0 9 06 60E+02	T074LS 1.29E-03 1.60E-03 238 238	AFGL D SECOND AVERAGIN Starte 18845:30	PRESS	AL.1	-	FPT	S	2 3.	FORM F	토규	
SY AFGL 30 SECOND AL STARTS	PRES CIP OBE ALT	7.825+02 6.885+81 1.005+84	2.62E+00 1.11E+00 FPT	O. TAS		O. FORM F	20	.29E-03 1.	97 AFGL 30 SECOND AVERAGIN 12 Starte 18845130	PRESS	AL.1	1.76E+02 6.54E+00 T	5.82E+90 5.02E+00 FPT	TAS 1	9 2 3	FORM F	 F.	.39E-03 2.
CIRRUS STUOT SY AFGL 04 APR 76 38 SECOND INFERVAL STARTS	IONS (NUMBER/M#3-MM) DLOUD SIZE PRECIP PROBE (4U) PROBE	1000 437 7.825602 1003 706 0.0016401 1014 1.0016401	1316 2.62E+00 1622 1.11E+00 FPT	1927 G. TAS	1402 (2500 00 1500 00	14-00 24-00 0 FORM F	100 00 00 00 00 00 00 00 00 00 00 00 00	.29E-03 1.	CIRPUS STUDY BY AFGL 04 APR 78 30 SECOND AVERAGIN INTERWAL STARTS 18145130	S (NUMPEZ/HP3-HH) PRESS 10 SIZE PRECIP 2 1E (HU) PROBE	ALT 1.14E+03	E+04 706 1.76E+02 E+03 1011 0.54E+00 T	E+03 1516 5.82E+00 FPT	2533 0. TAS	E+02 2843 U. Z 3.			.39E-03 2.
AFML CIRRUS STUDY SY AFGL EF8-16 ON 04 APR 76 39 SECOND BULL-ROSE INTERVAL STARTS	DISTRIBUTIONS (NUMBER/M+3-MN) SIZE CLOUD SIZE PRECIP (MU) PROBE (4U) PROBE	3.115-04 437 7.825-02 8.205-03 706 6.885-01	87 0. 1316 2.62E+00 08 0. 1622 1.11E+00 FPT	28 0. 1927 0. TAS.	DO 7-STEPON CASO U.S. 1	20 1-11	1996 0 • 0 • 1994 1996 0 • 0 • 1996 1996 1996 1996 1996 1996 1996 19	.13E-04 1.29E-03 1.	AFWL CIRPUS STUDY BY AFGL E78-16 ON O4 APR 78 30 SECOND AVERAGIN BULL-ROSE INTERWAL STARTS 18145130	OISTRIBUTIONS (NUMPER/HPB-MM) SIZE GLOUD SIZE PRECIP RU) PROBE (MU) PROBE	ALT 9.435+04 437 1.14E+03	1.65F+04 706 1.76E+02 7.76E+03 1011 8.54E+00 F	4-62E+03 1816 5-82E+00 7-88F+03 1622 5.02E+00 FPT 8-88F+03 1634 6.2	E+03 2283 0. 1AS	8.15E+02 Z843 G. 4.45E+03 3149 G. 2 3.	A. A. A. A. A. A. A. A. A. A. A. A. A. A	2.75E+03 4099 0. NT 2.2.76E+03 4576 0. 1.	.47E-64 2.39E-83 2.
CIRRUS STUOT SY AFGL 04 APR 76 38 SECOND INFERVAL STARTS	ISTRIGUTIONS (NUMBER/W+3-HH) SIZE CLOUD SIZE PRECIP (HU) PROBE (4U) PROBE	-85E+09 26 3.11E+04 437 7.82E+02	245E-06	.72E+86 126 0. 1927 0. TAS .90E+05 148 2.72E+03 2237 0. TAS	44504405 169 7-5004407 7050 0. 1	**************************************	71 1.66E+03 1065 0. 91 2.54E+03 4570 0. M	E-05 3.13E-04 1.29E-03 1.	A-WL CIRBUS STUDY BY AFGL -16 ON 04 APR 78 30 SECOND AVERAGIN L-ROSE INTEOWAL STARTS 18845130	SIZE GLOUD SIZE PRECIP SIZE (MU) PRESS SIZE GLOUD SIZE (MU) PROBE	ALT 4.56 9.435+04 437 1.546+03	.10E+08 47 1.65E+04 706 1.76E+02 43E+06 67 7.76E+03 1011 0.54E+00 T	.96E+06 87 4-62E+03 1316 5-82E+00 FPT 4-6E+06 108 7-88F+03 1522 5-02E+00 FPT 6-65	3075955 146 1.635903 2233 0. TAS. 22559 0. TAS. 22559 0. TAS.	.24E+06 189 8.15E+02 2843 U. 2 3.48E+05 219 4.44E+03 3149 0. 2	AND SAME SAVERED OF FORE FORE FORE FORE FORE FORE FORE F	7/1 / CADENUS 4000 00 NT 294 344 2015 4470 00 NT 344 2015 4670 4676 00 40	.47E-64 2.39E-83 2.

THE CONTROL OF THE CO

AFML CIRRUS STUDY BY AFGL FLIGHT: E78-16 ON D4 APR 78 30 SECOND AVERAGING TYPE: GULL-ROSE INTERFAL STARTS 18447:00

AFWL CIRRUS STUDY 94 AFGL FLIGHT E78-16 ON 04 APR 78 30 SECOND AVERAGING FYPE: BULL-RDSE INFERVAL STARTE 18646680

SS	AL 7 (XR) 9, 55	1 -46.050	FPT -43.9C	LAS (MVS)	137.52	2 4. 36E-01	FORM F .11		NT (N / N + + 13)	2. 56 56E+03	1.86E-03
PRECIP PROBE	2.48E+02 9.93E+01	9.525+00	2.78E+00	6.27E-01	••			•0	•	•	1.86E-03
BER/H*3. SIZE (HU)	137	1916	1622 1927	2233	2538	3149	3760	4065	4770	4676	
DISTRIBUTIONS (NUMBER/H#3-MM) SIZE GLOUD SIZE PR (NU) PROBF (NU) P	3.13E+04	3.67E+03 6.91E+03	1.41E+04 9.28E+03	1.10E+04	3.01E+03	1.51E+04	3.256+03	1.15E+03	4.068.02	3.60E+02	5.20E-04
DISTRI SIZE (NU)	814	67 87	128	148	169	209	250	271	291	311	
PARTICLE SIZE STATTER PROBE	2.56E+09 1.24E+08	2.46E+06 2.71E+06	1.48E+06 7.39E+05	1.48E+06	1.97E+86 1.72E+86	9.866+05	2.46E+05	7.39E+05	7.398+05	9.85E+05	9.79E-05
PA SIZE (#U)	~ ∽	85 F	~ #	12	‡ \$	9 5	≀ನ	33	22	27	INC JED D
PRESS (#8) 282,60	ALI (KRI) 9.56	T -46.21C		TAS (HVS)	137.31	Z 1.28E+00	FORM F .11		(F/ F) LX	5.51 40E+03	TOTALS 4.63E-03 282
ECIP	•	2.16E+01 T -46.21C 1.64E+01	_	TAS		0. Z 1.28E+00	0. FORM F .11	•0	O. NT(A/H*B)	0. 5.51 405+03	3.53E-03 4.63E-03 352 282
ECIP	1.05E+03 2.24E+02	•	7.25E+00 1.18E+00	6.29E-01 TAS	6.68E-01	• •		•	•	•	
NS (NUMBERPW3-MM) OUD SIZE PRECIP OBE (MU) PROBE	E+05 437 1.05E+03 / E+04 706 2.24E+02	2.16E+01 1.64E+01	E+04 1622 7.25E+00 F+04 1927 1.18E+00	E+04 2233 6.29E-01 TAS	E+04 2438 6-68E-01	E+04 3149 0. E+03 3454 0.	E+03 3760 0.	E+03 4065 0.	E+03 4770 0.	E+03 4676 0.	
NS (NUMBERPW3-MM) OUD SIZE PRECIP OBE (MU) PROBE	E+05 437 1.05E+03 / E+04 706 2.24E+02	7.76E+03 1811 2.16E+01 1.15E+04 1716 1.64E+01	E+04 1622 7.25E+00 F+04 1927 1.18E+00	2.20E+04 2233 6.29E-01 TAS	1,36E+04 2538 6.68E-01 3,09F+04 2843 0.	3.296+04 3149 0.6.6.66+03 3454 0.	3.255+03 3760 0.	2,815+03 4065 0.	2.425+63 4370 0.	2.16E+03 4676 0.	05-03 3,53E-03 88 352
COUTIONS (NUMBERFUA3-MM) CLOUD SIZE PRECIP WROSE (MU) PROSE	26 1,255+05 437 1,095+03 47 6,605+04 706 2,245+02	67 7,76E+43 1811 2,16E+41 1 87 1,15E+04 1716 1,64E+41	3.295+04 1622 7.255+00 1.97F+04 1927 1.185+00	148 2.20E+04 2233 6.29E-01 TAS	169 1.36E+04 2538 6.68E+01 189 3.09F+04 2843 0.	209 3.29E+04 3149 0. 230 6.86E+03 3854 0.	290 3,255+03 3760 0.	2,815+03 4065 0.	29! 2,425+63 4370 0.	311 2.16E+03 4676 0.	05-03 3,53E-03 88 352

PRESS (MB) 283.18	ALT (KH)	9.54		T -46.03C		FPT -43.8C		TAS (M/S)	137.11		Z 6. 47E-03		FORM F .14		XT (X /X+4 3)	1.6934E+03	TOTALS 2.42E-04 72
PRECIP PROBE	!	1.196+01	1.916+01	5.03E-01	•	•	•	•	•	•	•	•		ć	•	•	1.08E-04 306
MRER/H#3 SIZE (MU)		437	706	1011	1116	1622	1927	2233	2538	2843	3149	3454	3760	4565	0227	4676	
DISTRIGUTIONS (NUMBER/H*3-HH) SIZE GLOUD SIZE PR (HU) #ROBF (HU)		9.47E+04	3.315+04	7.75c+03	2.315+03	2.83E+04	6.995+03	2.75E+03	7.55E+02	8.15E+02		6	•	ó	ċ	ċ	1,345-04 58
OISTRY SIZE (MU)		26	44	67	87	108	128	148	169	189	503	230	250	271	291	311	
PARTICLE SIZE C E SCATTER D PROBE		2.50E+09	1.235+08	2.47E+06	1.48E+06	1.245+06	9.89E+05	•	1.48E+06	7.42E+05	2.47E+05	÷	•	ċ	9.896+05	2.475+05	5.98E-05
81 75 ST 75		~	**	'n	7	თ	7	75	77	16	10	19	2	23	52	23	INC MED D
æ 22	_			٠,		c		_	_		_					_	/n
PRESS (MB) 282.82	ALT (KH	9.55		T -46.06C		FPT -43,60		TAS (MVS)	137.73		2 2, 615-01		FORM F . 14		NT (N/H*# 3)	2.7272E+03	707ALS 1.94E-03
ECIP	ALT			٢		3.69E+00 FPT -43.6		D. TAS (HES)	137.73	•	0. Z 2.61E-0	.0	0. FOR'S F . 14	•0	D. NT(N/H*#3)	D. 2.7272E+D3	1.36E-03 1.94E-03 321 200
ECIP	ALT	4 . 25E+02	1.12E+02	5.51E+00 T	5.27E+00		•	O. TAS	•	•	•		•	•	•	•	
ECIP	ALT	437 4.256+02	*06 1.12E+02	1011 5.51E+00 T	1716 5.27E+00	3.69E+00	1927 0.	2233 0. TAS	2538 0.	2843 0.	3149 0.	3454 0.	.08E+07 4760 0.	40 65 D.	.715+02 4770 0.	.89E+D. 4675 D.	
ECIP	ALT	437 4.256+02	*06 1.12E+02	1011 5.51E+00 T	2,305+03 1716 5,27E+00	1622 3,89E+00	6.98E+03 1927 0.	1.00E+04 2233 0. TAS	1.05E+04 2538 0.	2.115+04 2843 0.	1,335+04 3149 0.	6.82E+03 3454 G.	1.08E+07 4760 0.	9,725+02 4065 0.	8.715+02 4770 0.	7.89E+02 4675 D.	.00E-04 1.36E-03 86 321
	ALT	26 1.56E+05 437 4.25E+02	\$ 47 3,29E+04 F06 1,12E+02	1011 5.51E+00 T	87 2,305+03 1716 5,27E+00	100 1.57E+04 1622 3.09E+00	, 128 6.96E+03 1927 0,	148 1.00E+04 2233 0. TAS	169 1.05E+04 2538 0.	5 189 2.115+04 2843 0.	209 1.33 + 04 3149 0.	230 6.82F+03 3454 G.	250 1.08E+07 4760 0.	5 271 9,725+02 4065 0,	291 8,715+02 4,70 0.	7.89E+02 4675 D.	.00E-04 1.36E-03 86 321

_ŧ

AFWL CIRRUS STUDY BY AFGL FLIGHT E78-16 ON 04 APR 78 30 SECOND AVERAGING TYPE: BU:L-ROSE INTERVAL STARTE 18447833

AFHL. CTORUS STUDY 97 AFGL FLIGHT E78-16 ON 34 APR 78 30 SECOND AVERAGING TYPE! BULL-ROSE INTERFAL START! 18148130

AVERAGING 18150100	PRESS (MB) 281.19 ALT (KH)	_	1 -46.530	FPT -44.60	TAS (M/S)	132.30	2 2, 776-04	FORM F . 77	NT (N / M++3) 5.7509E+03	FOTALS 5.08E-04 61	AVERAGING 18150130	PRESS (MB) 261.49	ALT (KH)	9.58	374.97- 1	FPT -45.10	TAS (M/S)		2 4.43E-04	FORM F . 76	NT (N /H++3)	(+27246783
Y AFGL 30 SECOND Starts	S-MM) PRECIP PROSE	6.246-01		00	•	30			•••	5.33E-07 191	AFGL O SECOND START4	PRECIP	3004				• •	• •	, 4	•••	• • •	,
- 2	(NUMBER/H+3 D SIZE E (MU)	100	1011	1622	2233	2843	3149	100	4379		e	SER/H+3		107	101	1622	2233	2538	3149	3480	43.40 43.40 43.40 43.40	,
CIRRUS 04 APR	CLOUS PROB	1.636+05	1.21E+04 2.39E+04	7.166+64	1.426+04	2.53E+0*	3.68E+03		• • • •	5.075-04	CTRRUS 04 APP	DISTRITUTIONS (NUMRER/H*3~MM) SIZE CALGUG MIN ROAGE MIN ROAGE		2.29F+R5 1.20F+R5	4.04E+04	40.474.6	2.365+04	6.285+03	4.63E+03	1.02E+03 0.		;
AFWL E78-16 ON Bull-Rose	DISTRI Size (MU)	9 × 5	67	108	8 9 9	139	209	200	327		A CHL E78-16 CN BUIL-ROSF			1 2 P	67	# # # # # # # # # # # # # # # # # # #	9 4	169	502	250	291	;
FLIGHT	PACTICLE SIZE E SCATTER PROBE	2.65E+09 1.28E+08	4.35E+06 5.63E+06	3.64E+86 1.28E+06	1.02E+06	3.58E+06	5 - 10 E+8 S	5.106+05	2.566+05	1.00E-04	FLIGHT.	PARTICLE SIZE SCATTER PROME		2.61E+09 1.51E+08	7.452+06	3.08E+06	1,64E+06	3.85E+06 2.31E+06	1.29E+06	1.205+86	1.40E+06 1.80E+06 5.13E+05	1
	(NH)	60 P 0 I	A N	6 4	22	16	4 ¢	38	388	INC 4ED D		PA 57.25 28.03	· '	nu en	r.	· " ‡	2	3 9	20	121	355	ı
5 2 2	PRESS (#8# 282.00 ALT (KH)		46.350	-44.0C	(S/H)	4	, 51E-04	777° J X	NT (N / HRB 3) 2.60 90 E+03	107ALS .18E-04 59	<u>9</u> _	.SS (MB) 280.22	CK.	3.61	76.790	-44.3C	S AL	131.69	1.146-04	F .91	NT (N # HB# 3) 2-4902E+03	
ER AG	PRE		•	F 0.1	TAS		2 3.	FORM	2.5 2.6	%	eragiy 149130	S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3 S	ALT		<u>.</u>	FPT	TAS	•	2 1.	FORM	NT (N	,
afgl r second averaging Starte læt49180	ROBE	.94E-01	: 		•		2	•	0. XTC	5.04E-06 2.	AFGL O SECOND AVERAGING START: 18:49:30	80 80 81 81	¥	• •	-	FPT		•	2	• •	D. MTCN 0. 2.49	•
7 AFGL 30 SECOND STARTS	ROBE	5.94E-01			•	•	2 .0		• • •	.046-06 2	UDY BY AFGL 30 SECOND ERVAL STARTE	80 80 81 81	#F		←	FPT	7.		2	• • •	• • •	•
CIRRUS STUDY BY AFGL OL APR PG 36 SECOND INTERVAL STARTS	CNUMBER/H*S+HH) IG SIZE PRECIP IF (HU) PROBE	+04 437 5-94E=01 +04 746 9-58E=01	+ Co Table Co + Co Table Co	+04 1622 G. +04 1927 G.	+04 2233 D+	2012	7169 0. 2	3760 0.	6476 6476 676	.046-06 2	CIRRUS STUDY BY AFGL 0% APR 76 30 SECOND INTERVAL STARTS	S (NUMBER/M*3-MM) UD STZE PRECIP AMI) BOORF	AL AL	707 0	103 1011 0. T	101 1622 0. FPT	+03 2233 0. TA	(US) (US) (US) (US) (US) (US) (US) (US)	3149 00 0	* C 00000	**************************************	,
CIRRUS STUDY BY AFGL OL APR PG 36 SECOND INTERVAL STARTS	SIZE CLOUG SIZE PRECIP (HU) PROSF (HU) PROBE	3.255.40% 437 5.946-01 3.375.40% 746 9.585-01	1.559E+04 1921 0. 1 1 1.65E+04 1416 0.	00 3.66F+04 1622 0. 26 1.31F+04 1927 0.	48 1.03E+04 2233 0+	69 0. 2843 0.	2 0 0 1149 0 2	30 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		*135-04 5.04E-06 2	FWL CIRRUS STUDY BY AFGL ON 0% APR 76 30 SECOND ISE INTERVAL STARTS	OISTRIGUS (NUMBER/M*3-MM) SIZE TLOUD SIZE TROID SIZE TROID	AL.	2.51E+05 437 0 2.59F+04 706 0	8.00E+03 1011 0. T	00 4-5001000 16-10 00 FPT	48 9,50E+03 2233 0. TA	69 0. 2538 0. 84 1.64Fed3 2863 0.	2 0 6712 0 60 60		• • •	
CIRRUS SFUDY BY AFGL D4 APR 78 36 SECOND INTERVAL STARTS	E DISTRIGUTIONS (NUMBER/H*3-HH) SIZE CLOUG SIZE PRECIP (HU) *ROSF (HU) PROBE	26 3.26F+04 437 5.94E-01 47 3.37E+64 746 9.58E-01	67 1.59E+84 1811 G. T 87 1.65E+84 1816 G.	108 3.86E+04 1622 G. 128 1.31E+04 1927 G.	148 1.03E+04 2233 D.	169 0. 2043 0.	209 0. 1149 0. 2	250 0. 3750	6370 0. 6370 0.	2.135-04 5.04E-06 2 59 301	FML CIRRUS STUDY BY AFGL ON 0% APR 76 30 SECOND SE INTERVAL STARTS	STRIGUS (NUMBER/H#3-MM) WAS TLOUD STRE PRECIP WAS MODEL ANIS BROBE	The second of th	.5666+09 26 1.316+05 437 0	#57E+06 67 8.00E+03 1011 0.	**************************************	.66E+45 148 9.50E+03 2233 0. 7A	.#6E+05 169 0. 2536 0.	73E+05 209 0. 3149 0. Z	* E	.30Fe06 291 0. 4370 0.	

TOBALS 7.312-84 62

> 7.31E-04 67

1.48E-04 19

7074LS 2.55E-64

> 2,55E-04 60

1.13E-04 20

INC VED D

10 15 20 00	PRESS (MB) 262.18	ALT (KM)	9.57	T -46.42C		FPT -45.00	TAS (HVS)	128.46	7 A. 4.8F+04	5	FORY F . 71	10000	3.40 93E+03	TOTALS 6.31E-04 85	AVERAGING 18152130	PRESS (#8) 262-15	ALT (KH)	9.57	T -46.45C		•	TAS (M/S)	120.69	2 3.25E-04	FORM F .78	100000000000000000000000000000000000000	5. 35 59E+02	107ALS 1.71E-84 87
STARTE 14	S-NH) PRECIP PROBE	•	3.86E+00		•	••		•	• •		•0	•	•••	3.29E-06 191	AFGL B SECOND Starti	-MM) PRECIP PROBE		•		• •	••	•	• •		• •	•	• •	•
INTERVAL	CNUMBER/M*3- B SIZE (NU)		437 706	1011	1316	1622	22.33	2538	7 6 4 5	3454	3760	40.65	4676		STUOY 9Y 78 SI INTERVAL	NUMMER/H#3- SIZE (MU)		437	1111	1316	1924	2233	2043	3149	3760	4065	4676	
EULL-ROSE EULL-ROSE	TEUTIONS CNUP TLOUB FROSE		3. 36F+64	1.245+84	2.47F+03	3.735+03	9.795+03	1.29E+04	9,515+03	6.27E+03	5.815+03	•		6.275-04	CIRPUS 04 APP	SUTTONS CNUM TLOUD PROSE		3.35E+04		20436442	2.486.93	3.90E+03	6.00E+07	4.74F+03		2.49E+02	94E+0	1.715-04
	SIZE		£ 52	67	94	128	148	169	502	230	250	122	311	•	AFWL E78-16 JN BULL-80SE	OISTRI SIZE (MU)		r 2	67	200	128	0 5 7 7	189	209	280	271	317	
	TICLE SIZ SCAFTER PROBE		2.70E+09 1.40E+08											9.41E-05	FLIGHT TYPE 1	PARTICLE SIZE SCATTER PROBE		2.76E+09	3.16E+06	1.05E+06	1.05E+06	1.05E+06	5.27E+85	2.63E+05		•	::	1.31E-05
	PA: SIZE (HU)		N M	ŧv.	~ (٠ 	15	# :	2 5	61	21		36	THC TED 0		PA SIZE (HU)		N M	1 0	~ σ	"ដ	27	1 2	20	2 ಸ		35	O ON THE
	PRESS (MB) 282.03	ALT (KH)	9.57	T -46.29C	•	FPT -45.20	TAS (H/S)	130.62	2 4.24E-04		FORM F .79	12 00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6.02176+03	TOTALS 7.61E-04 61	AVERAGING 18:51:30	PRESS (NB) 202.65	ALT (KM)	•	T -46.150	10.1.1.		TAS (HVS)	163404	2 6.185-84	FORM F . 78	AT (N /NEB.3)	7.70 76E+03	#01ALS 8.05E-84 60
	MAS PRECIP PROBE		••		•	• •		.	• •		•	•	••		AFGL 30 SECOND 1 START:	S-HA) PRECIP		• •	:	•	::	ė.	• •		::	==	::	• •
	(NUMBER/H+3-MH) SIZE PRECIP		4 04 4 05	101	1316	1622	2233	2538	7 0 to	3654	3760	4065	4676		STUDY 9Y 78 30 INTERVAL S	(NUMBERYN#3*) SIZE (MU)		107	101	1316	1927	2933	2843	31.69	3760	£002	4676	
	SUTTONS CNUM TLOUD PROBE		2.645.05									•	::	7.61E-04 61	CIRRUS 04 APR	TONS	!							1.145+04	1.156+03	•		6.65E-64 66
	OISTRIS SIZE				20	⊕ <) e0	69	o o	30	20	Z i	311		AFHL E78-16 ON Bull-Rose	OISTRIBUT SI ZE									256 256 256			
	PARTICLE SIZE E SCANTER		2.63E+09	5.96E+06	5.70E+06	3.895+86	1.29E+06	2.335+06	2.07E+06	1.30E+06	1.55E+06	2.58E+05	1.81E+16 5.19E+05	1.28E-04	FLIGHT! TYPE #	MATICLE SIZE SCATTER MODE		2.585+49	7.31E+06	6 - 80E+06	3.405+06	2 · 59E + 05	1.31E+05	1.635+06	5.19E+05 2.60E+05	5.21E+05	1.04E+06	9.61E-85 16
	PA SIZE	è	~ +) e r		σ;	12	3	<u> </u>	9	ಸ	8	32	INC TEO D		94 S12E		N F	r en	۰.	7 #	2	35	13:	5 2	2	32	0 0 7 7

FLIGHT E78-16 ON 04 APR 78 30 SECOND AVERAGING

AVERAGING 10 is 4:00	PRESS (MB) 282.46	ALT (K#0 9.56	1 -46.420	FPT -43.70	127.25	Z 2.95E-04 FORM F .53	NT (4 / Mee 3) 2.9925±+02	TOTALS 0.18E-05 125	9 71 9 8 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1 9 1
Q.	FECTP PROBE	• ∈		•••		•••	•••	5.55E-06 191	37 AFGL 30 SECOND AVERAGING START: 18861813
AFML CIRPUS STUDY BY AFGL FLIGHT! E78-16 ON 04 APR 78 30 SECO Type: Bull-Rose interval start:	DISTRIBUTIONS (NUMRER/Me3-MM) Size Cloud Size PR (MU) PROBE (MU) P			5.77E+03 1622 1. 1927 1. 2233		1E+03	2.51E+02 4065 5.03E+02 4370 1.01E+03 4676	7.63E-05	CIPPUS STUDY BY AFGL OF APP 78 30 SECO INTERVAL STAPTS
AFWL 1: E78-16 ON BULL-ROSE		26 0.	96.	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	_			2.	FLIGHT ET8-16 JN 0 TYPE: BULL-ROSE
FLIGH	PARTICLE SIZE : SCATTER PROBE	2.88E+89	7.98E+05 2.66E+05	n (V (V	2. 45E+05 0.		0. 2.65E+05	3,916-05	FL 1GHT TYPE 1
	\$1.2E (MU)	W PS	2000	*##	\$	952	722	INC HED D	
AVERAGING 10:53:80	တို့	ALT (KH)	T -46-450	TAS (N/S)	126.42	FURH F .84	NT (N /H++3) 1.70 03E+03	TOTALS 3.166-04 61	RAGING 53 # 30
Ş	PRECIP PROBE	6.43E-01	•••	• • •	• • •	• • •	•••	5.49£-u7 191	STUDY BY AFGL 79 30 SECOND AVERAGING INFEWAL START: 18:53:30
STUDY BY AFGL 78 30 SECO INTERVAL STARTS	(NUMBERPH#3-MM) STZE PR	447	11011	1927	25.48	364	4370		CIPRUS STUNY 9Y AFGL 04 APR 79 30 SEC INFERVAL START
Ë.g	TIONS (NU CLOUD PROSE	1.01F+05 8.83E+03	8.27E+03 2.47E+03	1.12E+04 7.92E+03	5.64c+03	1.05E+03	•••	3.16E-04 81	CIPRUS 04 APR
AFNL CIR E78-16 ON O4 BULL-ROSE	DISTRIBUTIONS SIZF CLOUD (MU) PROSE	1.01F	8.27E	1.126	7.00	250 0.05E+03		3.16E-04 81	AFML CIPRUS 578-16 ON O4 APR 3911-4046
AFML CIRRUS FLIGHT E78-16 ON O4 APR TYPE: BULL-ROSE	PARTICLE SIZE DISTRIBUTIONS (NU Scatter SIZF GLOUD PROBE (4U) PROSE	26 1.01F	8.27E	11.00	7.00	250 10 10 10 10 10 10 10 10 10 10 10 10 10		7.02E-05 3.16E-04	CIPRUS 04 APR

တိုလ	ALT (KR) 9.56	T + 4.6.440		FPT -43.90		TAS (H/S)	127.30	7 1. 205-01		FORM F . 57		27 12 120 421	1.08 4.75+03	TOTALS	3. 53E-04
PRECIP PROBE	2.60E+01	• •	•	•	•	•	•								161
MAEP/H#3 S12E (MU)	*	1011	1416	1622	1927	25.73	2863	3149	3454	3769	4065	0417	4676		
DISTRIGUTIONS (NUMREP/H+3-MH) SIZE CLOUD SIZE PR (HU) *ROGE (HU) P	9.	8.36E+03	•	1.185+04	2001602	204:02.40	1.758403	2.085+03	2-11E+03	1.17E+0?	1.735003	2.555+03	3.77E+03	7. 34 F a. 5	121
SIZE (HU)	56	67	87	Đ (0 0	9 4	199	209	230	250	271	291	311		
PASTICLE SITE (E SCATTER) PROBE	2.94E+U9	1.865+06	2.66E+06	1.07E+06	004400	2.665405	2.665+05	:	2.66E+05	2.66E+05	5.33E+05	2.662+25	5.326+05	6.435-05	3
\$1.2E \$HUJ	~*	ο rv	•	٠:	: :	4 -	97	£	19	ನ	23	52	23	THC	16.0
PRESS (MB) 282.35	95.6	7-46.440	;	FPT -43.80	170	127.83		2 6. 95E-04		FORM F . 63		(の・・エノミ) トス	3, 7922£+03	FOTALS 5.316-04	12
RECIP 20	3.24E+00 9.56	0. 1 -46.440	• 0	D. FPT -43.8C	2017		• • • • • • • • • • • • • • • • • • • •	0. 2 6.95£-04	•	D. FORH F .63	•	(5)****/**	0. 3.7922E+03		191 74
RECIP 20	3.24E+00	101 0. T -46.44C	•	•						<u>.</u>	•	•	•		
TONS (NUMBER/H+3-MH) PRESS 3.000 SIZE PRECIP 2.8 RROWE (HU) PROBE ALT	437 3.24E+00	• •	1316 0.		774, 00		2002	3149 D.	.0 484.	3760 0.	4065 O.	4370 O.	•	2 - 76 - 96	191
TONS (NUMBER/H+3-MH) PRESS 3.000 SIZE PRECIP 2.8 RROWE (HU) PROBE ALT	437 3.24E+00	1011 0.	1.985+04 1316 0.	4.37E+04 1F22 0.	19 19 19 19 19 19 19 19 19 19 19 19 19 1		2002	2.86E+03 3149 D.	1.05E+03 3454 0.	2,336,03 3760 0.	1.54E+03 4065 0.	1.02E+03 4370 0.	6.74E+02 4476 0.	2.295-04	191
IGUTIONS (NUMBER/H+3-MH) CLOUD SIZE PRECIP RODE (HU) PROBE	26 6.71E+04 437 3.24E+00	5 67 8.30E+03 1011 0.	87 1.98F+04 1316 0.	4.37E+04 1F22 0.	0 100 01-01-01 100 100 100 100 100 100 1		189 1.405.04 2.44 0.	209 2.868+03 3149 0.	1.05E+03 3454 0.	250 2.33E+03 3760 0.	271 1.54E+03 4065 0.	291 1.02E+03 4370 0.	6.74E+02 4476 0.	2.295-04	161

NOTES OF SECTIONS
AFML CIRRUS STUDY BY AFGL FLIGHTI E78-16 1N G4 APP 78 30 SECOND AVERACING TYPE: BULL-ROSE INTERVAL START: 18:55:00

FLIGHT E78-16 ON D4 APR 76 30 SECOND AVERAGING TYPES BULL-ROSE INTERVAL START 16156100

arteinanten era et estado estado estado dos estados dos estados estados estados estados estados estados estados

PRESS (48)	Al, T (KH)	15.9	FPT -44,10	TAS (HES)	7 1. 976-07	FORM F . 54	NT (N / M++3)	FOTALS 4. 64E-04 121
-HH) PRECIP	PROBE	00.	900	• • •		••		5.51E-05 191
(NUMBER/H#3*HH) SIZE PR		101	1622	2233	# 46 A A A A A A A A A A A A A A A A A A	3760	4470	
SIZE CLOUD	9×09E	2.67F+84 8.31F+03	5.06E+03	9.865.402	1.756+03	3.456+03	4.39E+03	4.095-04
SIZE	26	4 P	108	4 6 9	5 0 3 5 0 3	250	291 311	
PARTICLE SIZE (2.635+09	1.79E+08 3.10E+07	1.22E+07 6.10E+06	2.65E+06 2.12E+06	2.64E+05	2.65E+45	7.94E+05 5.27E+05	1.076-04
SI7E	~	w	. 6.1	22:	3 2 5	នេះ	22	1 KC
PRESS (#8) 262,40	ALT (KH) 9.56	1 -46.410		14S (MS) 127.39	2 1, 336-03	FORM F . 61	NT (N / Hee 3) 1.0396E+03	707ALS 3,71E-04 119
PRECIP PROBE	2.53E+01	•••		• • •		90	••	2.16E-05 191
MAERFH+3. SIZE (HU)	12 14 14 14 14 14 14 14 14 14 14 14 14 14	1000	1622	2000	38 40	4769	79797	
UTTONS CHE CLOUD	3.385+84		6.76r+03 2.50r+03	8.14E+0?	3.835+03	2.34E+03 2.57E+03	1.10F+03	3.50E-04 117
015TR19 S12E (MU)	26	84	126	691 198	239	270	311	
PARTICLE SIZE DISTRIGUTIONS SCAFFER SIZE GLOUG PROSE (MU) *RORG	2.91E+09	8.29E+06	4.79E+06 2.66E+06	2.93E+06 1.66E+06	1.066+06	7.98E+05 2.66E+05	5.338+05	3.586-05 14
SIZE (HU)	~~	10 h	e # 7	149	# # # # # # # # # # # # # # # # # # #	357	36	180 480

PRESS (M9)	ALT (KM)	7 -46.530	FPT -43.80	TAS (H/S) 126.97	Z 3. 88E-03	NT(N/Hee3)	TOTALS 4,46E-04 126
HH-	1 + 90 E + 0.2	1 - 53E +00 0 -		* * *		••••	1.56E-04 194
32.18 32.18	63	706 1011 1316	1622	200 200 200 200 200 200 200 200 200 200	3454	4065 4379 4676	
DISTRIBUTIONS (NUMBERFM43-HM) SIZE OCOUD SIZE PO (HU) SECRE	Ġ	, , , , , , , , , , , , , , , , , , ,	1.34F+04 1.23E+03	2.916+03 1.615+03 5.20E+93	1.918+03	1.52E+03 2.00°+03 1.44E+03	2.9004
DISTRI SIZE (HU)	. 28 24 24	967	108 128	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	200	271 291 311	
PARTICLE SIZE SCATTER PROBE		4.47E+06 2.89E+06	2.37E+06	1.31E+06	2.05E+05 5.24E+05 0.	5.25E+U' 2.65E+05 2.62E+05	6.70E-05 6
\$175 (98)	1.3 #7	in N	, # 5	144	353	25	INC 4ED D
PRESS (MB) 282+40	AL! (KH) 9.56	T -+6.44C	TAS (HVS)	127.40	FORM F . 64	NT (N / M** 3) 7.6829E+02	70TALS 2.86E-04 108
-MH) PRCIP PROBE	2.66E+01.0	•••		•••		•••	2.276-05
NUHERYH+3-NH) S125 PR (MU)	437	1314 1316 1622	2233	2538 2543 3149	3424	4676	
TONS (ELOUD ROGE	6.76E+04	0. 4.975+03 8.456+03	7.51E+03	8.13E+02 1.76:103 2.67E+03	3.16E+03 1.17E+03	1.595+03 1.85E+03	2.5 4E = 04 10 %
0157e13U7 \$12E (4U)	94	100	1 1 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	169 189 239	230	311	
PAATICLE SIZE SCATTER PROBE	2.98E+09 1.38E+08	. 46E+05 . 66E+05	5.32E+05 7.98E+05	.468+05	2 • 66E+05 5 • 32E+05 5 • 32E+05	32E+U5	6.685-05
2	Ň	4 6. 01	W ~ I	-00	01 PV RV	w or	٠

THE STATES OF THE SECONDARY OF THE SECON

AFHL CIORUS STUDY BY AFGL FLIGHT F78-16 ON D4 APP 78 3D SECOND AVERAGING TYPE: RULL-ROSE INTERVAL START1 18155133

FLIGHT E78-14 ON 04 APP 78 30 SECOND AVERAGING TYPE: BULL-ROSE IVTERVAL START: 18156130

AFWL CIRRUS STUDY BY AFGL	FLIGHT E78-16 ON 04 APR 78 30 SECOND AVERAGING	TYPE: BULL-ROSE INTERVAL START: 18:50:00
AFML CIRRUS STUDY BY AFGL	FLIGHT ET8-16 ON D4 APR 78 36 SECOND AVERAGING	TYPE: MULL-ROSE INTERVAL STARTS 18657:59

.ss 27	ALT (KH)		4 -47.12C	FPT -43.50	10077	200		2 9.616-03		140.	NT CH / Hee 3)	7.69 90E+03	TOTALS	117	AVERAGING 18858130	PRESS (MB)	27.0.12	ALT (KH)	9, 66	7 -47.120		FPT -43.90	TAS CHUSI	126.04	1	7 7.56E-03	FORM F .52		(Peek/X) LX	20.30.00.00	10TALS 1.81E-03 107
3-MM) PRECIP PROBE	3	•	• •		•		• •	•	•	•	• 6		4,586-04	192	AFGL O SECOND START!	TE-	PRECIP		4 - 19E +02	; •	•	ė.	•			•	•		•	•	3.06E-04 192
(NUMBER/M*3 SI ZF (MU)				1622											~ Z	PRER/H.S	STZE PRECI												0.4		
304TONS CLOUD 5095		1.345+05	2.52E+04 2.58F+04	6.295+04	2.775404	1040404	1.595+04	1.546+04	1.27E+04	440400	9.645+03	6.495+03	1.105-01	76	THE CLORUS STUDY ON OU APR 78 INTERV	UTIONS	0000 90016	•	1.356+05	2°49E+04	2.236+04	3.695464	1.28500	1.055+04	2.276+04	2.67E+04	3.135+04	6.576+03	8.975+03	2.052.443	1.50E+03
SIZE (MU)	26	4	67 7	100	128	9 4	189	209	230	474	100	311			E78-16 EULL-RO	DISTRI	12 IS		5 <u>.</u>	6	87	100	921	169	189	503	253	271	291	116	
APFICLE SIZ Scatter Probe	2.945+09	1.586+08	9.90E+06	6 + 3E+06	4.01E+06	1.000.1	2.14E+86	1.34E+06	2+67E+05	1.346.400	1.645406	6.03E+05	4.495.04	17	FLIGHT	AATICEE SI7	SCATTER		2.935+89	6.94E+06	8.4.7E+06	8.74E+06	3.97E+46	3,186+16	3.44E+86	3.97E+06	1.065+06	1.06E+06	1.595+60	1.435.03	1,746-04
SI ZE (MU)	•	m	w r	φ.	ร:	2 :	1 97	2	67	37	3 %	2.2	2	450 0		~	21 ZE		~ •		~	Φ;	30	1 3	91	9	2 2	: 2	80	/2	TWC AED D
27	ALT (KH)		T -47.01C	FPT -43.50			00 42 94	Z 1. 12E-02		FOK4 + 525	ILL CHAPPEN	2.1366E+03	TOTALS	133	AVERAGING 18857830	PRESS (ME)	276.92	ALT (KM)	49,6	T -47.19C		FPT -43.4C	196 64661	126,07		2 5.47E-03	FOOM F. S.		NT CN / Head)	2. 99 10E+US	TOTALS 1.48E-03 118
PRECIP	Ġ	5 - 20E+00	• •		ġ.	• •		•	•	•	•	• •	46.4	161	9f AFGL 30 SECOND AVE L START! 181	î	STZE PRECIP		3.31E+02		•	•	•	• •	•	•	• •		•	•	2.435-04
(NUMBER/M+5- S SIZE (MU)	12.4	706	1811 1716 1716	1622	1927	7677	2843	6415	34.54	2000	100	44.76			TUDY	HBER/H*3.	ST 2F (MU)	;	£34	101	1116	1622	1261	25.48	2843	31.49	3 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2002	6483	0	
CLOUI CLOUI	6 . 6 B E + 0 4	2.695+04	4.20E+03	5.116+03	504348°6	1.135.400	4.438+03	6.76=+03	1.06E+04	3.64:463	A 115 P 34	5.86E+03	100	118	CN TRRUS S	SULTONS (NUMBER	SLOUD PROUF		6.85E+04		2,51E+03	1.205+04	6. 33E+03	C. 75F+03	1.336+04	7.745.003	10-186-1	5.436+03	6.23E+03		8.35E-04 204
SIZE SIZE (MU)		3	87 87	100	921	9 4	169	598	230	2,70	1 000	311			578-16 BULL-RO	MISTRI	3128		5.5	67	67	108	921	169	169	502	0 C	271	291	311	
icle size Scatfer Probe	0E+08	56E+ 08	62E+06 68E+06	.682+06	295+06	155 + DB	146+06	69€+ 105	68E+05	005403	406416	68E+48	96.49.4	12	FLIGHT	CLE SIZE	SCATTER PROBE	}	1316	2964	52E	69E+	966.	17E+	15	68E+	1111	976	075+116	100	21E-04 19
PA271C SCA PR	2.0	-4		~	.		N	~	ů.	•		ຸ່	•	•		AZTI	S a	•			ž								÷.		4

A CONTROLLEGICALIST CONTROLLEG

APEL CIRRUS STUDY BY AFGL	FLICKT ETS-16 ON OF APR 78 UD SECOND AVERAGING	TYPER BULL-ROSE INTERFAL START? 19800160
AFEL CHRPUS STUDY BY AFGL	FLIGHT EFO-16 IN GA APP TO NO OFFICING AVERAGING	TYPE: BULL-ROSE INTRAVAL STARTS 10:59:00

PRESS (MB) 276.03	ALT (KH)	9,66		290.27-		FPT -45,90		TAS (M/S)	132.26		7 5. 60 6-04		FORM F .22		「り・・エンエントス	2. 57 18E+62	#074LS 4. 39E-05
-HH) PRECIP DECEP		1.23E+00	1.986+00	•	•	•	•	•	•	•	•	•	•	•	•	•	1.04E-05 361
(NUMBER/N#3-NH) STZE FR	}	447	706	1011	1316	1622	1927	2231	2° 38	29.43	31 49	1454	3760	1907	4370	4476	
DISTRIGUTIONS (NUI	1000	3.26E+04	ċ	ċ	2,395+03	8.146+03	1.216+03	÷	ċ	A.45E+02	ö	•	ċ	•	•		## 1.30°€
DISTRI SI 7E		26	`*	67	97	108	128	9 % 1	169	189	209	230	250	272	291	31.1	
PARTICLE SIZE	7 8 9	3.052+09	1.465+08	5 - 1 3E+ 05	5 . 12E+05	5.135+05	2.565+05	5.125+05	5 . 12E+05	2.56E+05		•	2.57E+05	2.56E+05			4,475-05
\$1.7E	5	~	**	£		•	#	12	4	16	19	5	57	23	52	5	C TEO
22																	
PRESS (48)	ALT CKM	9.66		7 - 47.090		FPT -44.50		TAS (MVS)	130.40		2 7.17E-03		FORM F . 47		ET (E / E + E d)	4. 3F 83E+03	TOTALS 1. \$95-03
ARCA P	111	į	5,005-01	-		FPT -44.50		1AS (14/S)	130.40		0 . Z 7.17E-03	•	D. FORM F .47		D. NTCN/Het 33	D. 4.39 BUE+DS	707ALS 3.09E-64 1.39E-03 192
ARCA P	FRUBE.	4 - 23E+02		4		•		. 6	•			•				4575 8. 4.37 63E+03	
CHITCHE TANKS OF THE CANADARY	110 20024 (OL)	+04 437 4.23E+02	+04 7u6 5,00E-01	+04 1011 0.	+84 1316 0.	1622 0.	+03 1927 0.	+0.4 22.43 0.	+G3 2538 G.	+63 Pat 0	+03 3149 0.	404 3454 0.	+03 3760 0.	+03 t065 0.	+03 C 0453 CO+		
CHITCHE TANKS OF THE CANADARY	110 20024 (OL)	+04 437 4.23E+02	+04 7u6 5,00E-01	+04 1011 0.	+84 1316 0.	3.31E+84 1622 D.	4+92E+03 1927 D.	3.87E+D3 2243 D.	2.36r+63 2538 C.	CO PART NOTE OF	4.685+03 3149 0.	1.535000 3454 0.	9.15E+03 3760 0.	9,165403 4065 0.	9.178+63 6340 0.	+07 us78 0.	*63 3.09E=64
ARCA P	110 20024 (OL)	26 6.645+64 437 4.235+02	47 6.09E+54 7US 5.00E-01	67 2.45E+64 1011 0. 7	87 2,43E+64 1316 0.	108 3,31E+84 1622 D.	128 4-92E+03 1927 D.	148 3.87F+D3 2243 D.	169 2.385+03 2538 0.	1.09 3.465.403	209 4.665+03 3149 0.	230 1.555.04 3454 0.	250 9.18E+03 3760 0.	271 9.16E+03 4065 D.	291 9,178+63 4370 0.	5.96E+07 4575 0.	*63 3.09E=64

PRESS (MB) 277.96	ALT (KH)			1 -47.140		FPT -46.40		TAS (N/S)	132.84		2 3.976-05	•	FORM F .55		こう・サインと)とと	6.6582£+01	TOBALS 1. 49E-05 61
PPECIP	100	2.48F+00	•	•		•	•	•	•	•	ċ	•	•	•	•	•	2,12E-06 191
UMPER/H*3 SIZE	Ē	437	706	1011		3675											
SIST CLOUD SIZE STEER	36046	÷	•	•		1,625,00	å	•	7.80E+02	8.41E+02	ċ	ċ	•	•		•	1,28E-05
DISTRI N SI ZE	ŝ	26	۲,	67	97	108	128	140	159	189	500	230	250	27.1	291	311	
PARTICLE SIZE (PROBE	3.096+09	1.516+06	5.10£+05	2,555+05		2.55E+05				8		2.545+65			2, 55E+05	4.29E=05
PA:	ŝ	~	-7	1	•	œ	1	12	3	16	3	5	: =		, c,	≈	THE
5 6	5		,	ي	,	ပ္		:	2		2			,	=	m	v.a.
PRESS (MB) 278.24	7.4	9.6		10.74- 7		FPT -45.		TAS	131.	1	2 7. 44E-	!	FORM F.		NY CN / Kee	1.1601E+03	101ALS 2,72E-04
ECIP	409E	1.196+01		10° 24- 1		FPT -45.		TAS CH	1310		0. Z 7.44E-		D. FORM F.		100X/X/XX	0. 1.16 G1E+D	1.82E-05 2.72E-0
ECIP	409E	1.196+01		•	•			•	•	•	•		•	á		4676 0. 1.1601E+D	
ECIP	409E	75+04 437 1,195+01	25+04 706 0.	16+04 1611 0.	1416 0.	1642 0.	15+03 1927 0.	20.40.4 2233 0.	35+42 2559 D.	1E+32 2843 D.	SEPTIME 2549 0.	DE+04 34.94 D.	PERDY SYSS D.	G 5507 FG+34	B+04 447 0.	35+03 4676 0.	1. 0. 25.00 to 10.00
ECIP	409E	75+04 437 1,195+01	25+04 706 0.	16+04 1611 0.	9.	3E+03 1642 0.	1,215+03 1927 0,	3.625+03 2233 0.	7.985+42 2539 0.	8.515+32 2843 0.	2.765+63 3149 0.	5.10E+0% 3454 0.	2.27E+07 3765 0.	1.74F+03 LOSS D.	1. 34E+04	1.035+03 4676 0.	25-104 1-628-05 107-104
	409E	75+04 437 1,195+01	25+04 706 0.	16+04 1611 0.	6 87 0. 1116 0.	108 6.53E+03 1642 D.	5 126 1,215+03 1927 0.	168 3.825+67 2233 0.	7.985+42 2539 0.	5 189 8.51E+32 2843 D.	2.765+63 3149 0.	5 230 S.10E+03 3454 D.	2.27E+07 3765 0.	271 1.745.03 4055 0.	1.34E+04	1.035+03 4676 0.	25-104 1-628-05 107-104

ACHL CTPRUS STUDY BY AFGL
FLIGHT ETB-16 ON Q4 APR 76 30 SECOND AVERAGING
IMPER PULL-ROSE INTERVAL STARTS 18159133

AFUL CIRRUS CTUDY BY AFGL AVERAGING TYPE: 60LL-ROSE INTERVAL START! 19100130

AFHL CIRPUS STUDY BY AFGL AFUL CIRRUS STUDY BY AFGL FLIGHT ETR-16 ON NG APR 78 30 SECOND AWERAGING

ST SE PRECIP	2,48E+00	00	00	00	-				37 AFGL 30 SECOND AVERAGI L STARTE 1910213	-HH) PRECIP	PRORE			••	••	•••		•••			•			
(NUMBER/M+ SIZE (MU)	447		_				12 4370 12 4370		STUDY 79 NTEFVA	JUTIONS (NUMBERZH+3		1 706			1927			3760	5 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6					
S CLOUD (NUMBER S CLOUD S PRO9E (د ه	3.23	1.68. 0.			2.395+02		, to	CHUTTONS (0. 8.44F	2.48500	3.212+0			• •		•••	2.40C-0F	?			
SIZE DISTRI					4 (/)	*4.74	101		AT' E78-16 CN # 8ULL -905F	SIZE DISTRY		_							323					
PARTICLE SIZE SCANTER PROBE			-					4.536-0	FLIGHT TYPE	AOTICLE Scatte Peque	160	3 - 10E + ug	0 4 3 4 0 .	5.05E+05	1.015+06	200	•••	2.52E+u5		+ . U 3E - 05				
SI 76 (HU)					25	52	25	LHC fen n		97 J.S.	. '	∿ •> •	۰.	ΦΞ	: 2 :	123	5 5	22.	35.	1 KG				
£\$\$	99.66	1		133,14	7 6. 952-04	FORM F . 58	NT (4 / Hee 3)	TOTALS 2.57E-04 99	ERAGING 10113	SS 27	ALT (KP)			FPT -46.6C	TAS (M/S)	(10016	Š	NT (4 /Hee3) 3.06 03£+03	107ALS 1.05E-03				
3-MM) PRECIP PRODE			00	90	000	-0	•••	1,386-05	17 AFGL 30 SECOND AVER . "TABTE 1910	S = MM) PAECIF PROBL		1.486.00		•••	•••		•	••	.;	2.68E-04				
SIZE (HU)	105	1116	1927	27.34	6475	1460	4679		US STUBY AY SOR 76 INTERVAL	121	71.7		4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	1927	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	7867	3696	3750 4755	4370 4675					
BUTTONS (NUM CLOUD PROME	1.705+04	3.092.604	3.595+03	7,765.02	2.795.03	1.125.03	9.815.02	2,435-04	SW CIODUS S	PUTTONS (NUMAE)	1.235.00	1041011	7.148+03	1.605+04	5.44.44.6	5,045,103	5.065.00	4.566.403	5.00 mm m	70-34-67				5
512F 512F (4U)	54 54 54		W 2	÷0 ≪	~ ~) to 1	3.37		2.28-15 0012-90	218781 812° (40)	56	373	•	129	169	# 60°		271	311					a ti e vilages
PARTICLE SIZE SCATTER PROSE	1.126+09	. 5 3E+	. 326.	1.276463	546+	33.6		5.455-05	13641	FIGLE S17E SCANTER PRODE	3.u/E+09	1.56E+08 5.66E+08	1.566.05	2.542.06	1.53E+06 7.53E+09	1,026+04	7.638.05	Z - 54E + 05	1.27£+06 0.	9,035-05		,	-	Дийібларый компере, о метро я
\$125 (MU)	en en en	K (P	=2	3 £	200	: 25 %	232	TEO O		71.25 71.25 (MU)		, on si					52	: 27	5 2	14C		•	•	Wild of the state
								{	32														HARACHER CO. C.	FERENCIA RESERVANTORES COMMON P.St. of Blots and Linds In a Riv
																							ene ny a primawa pobledya 40	i, filledridencevene Sedial Sillevia annu
																							e debes grandations	

Averaging 19104180	ES 5	ALT (KM) 9.66	1 -47.210	FPT -46.50	TAS (M/S)	136.12	Z 7. 83E-06	FURM F1.00	12 44 W W TH	2.3871E+01	TOTALS 3.46E-06 65	AVERAGING 19104:30	PRESS (MB) 277.46	ALT (KM)	9.68	7 -47.180	FDT -46. AC		145 (145)	10 to 10 to	69-309-> 7	FORM F1.00	NT (N/H**3)	4. 16 86E-01	TOTALS 1,556-06 191
SECOND A	PRECIP		. , .			••	•				o •	AFGL O SECONO START:	PRECIP		1.815+30	: :	,		••	.		•	• •		1,556-06
, .t	NUMBER/A#3 SIZE (MU)	437	706 1011 4746	1622		2538 2843	41 49	3760	4065	4676	10	STUDY 178	(NUMBERCH*3-MM) SIZE PR	;	F37	1111	1415	1927	2233	2843	3454	3760	4410	46.76	
3N 04 A-1	TISTRIBUTIONS (NUMBER/AMS-MM) SIZE CLOUP SIZE PR (MM) 9-03F (MM)	•		10.		.	.	; ;	å		3.45£±06 65	AFUL CIRPUS ON O4 APR OSE	SLOUN SLOUN SROAF		÷.		ត់ទ		:	.	••	.		•	•
F E78-16 3N BULL-ROSE	ZE OTSTRI SIZE (HU)		7 L A	108	148	169 189	209	250	271	311		E78-16 BULL-P	1 STRI SI ZE				. 67	123	148 169	139	233	250	291	311	
FLIGHT	PARTICLE SIZE E SCATTER PROSE	3.48E+09	1.59E+08 0.		2.498+05	••	•		2.49E+05		3.91E-05	FLIGHT 1 YPE 1	PARTICLE SIZE O SCATTER PROBE		3.052+09	0.	•	, ,		•	::	.	: 6	:	3.56E-05
	PA SIZE (MU)	~	4 W C	- თ <u>-</u>	121	1 1 1 1 1	10	5 7	53	22	TWC 1ED 0		PA \$125 (#11)	}	~ ~	rw	~ 0	`II	2 2	97	2161	21	38	27	14C
9 CO	PRESS (MB) 277.56	9.68	362°24-	-46.30	(SZH)	34.98	5. 88E-D4	. 43	í	20+3	107ALS 31E-04 132		(MB)	£	9,68	302.	4		135,61	ě	*	. 55	£ 33	3,5133	707ALS 58E-04 64
18 AG	PRES	AL T	1 - 47	4- 143	TAS	ä	2 5.88	FOR	1	4.48035+02	TOTALS 1.31E-04 132	RAGING 103130	PRESS (MB) 277.43	ALT		1 -47	103		1AS (,		FORM F	NT(N FHEE3)	1.63	4
SECOND AVERAGING START: 19:03:00	ECIP ROBE	AL •65E+01	۳	rP1	14S		. 2	FOR	•		TO. 1.41E-05 1.314	AFGL 1 Second Averaging Start: 19103131	ECIP		7.32E+00	24- 1			. TAS		7	FORM	D. NTCN/T	•	6.25E-06 1.5
30 SECOND AL STARTS	ECIP ROBE	1.65E+01		10°	0. 148		2 .0	G. FOR	•	••	÷	9Y AFGL 30 SECOND AL START:	ECIP	1	٠.	1 -43			0. 0.	•		O. FORM	• •	•	ä
04 APR 78 30 SECOND INTERVAL STARTS	(NUMBER/M*3-MM) SIZE PRECIP (MU) PROBE	437 1.65E+01	706 0. 55+04 1011 0. T	1622 G. FPT	9c+02 2233 0. TAS	5E+62 2538 0. 1 2843 0.	3149 0. 2	376J G. FORM	3E+02 4065 D.	\$5+02 4570 U.	÷	CIDOUS STUDY 9Y AFGL 04 APP 76 30 SECOND INTEDVAL START:	(NUMGEPF#43-MM) SIZE PRECIP		100	1011 0. 1 -47	1316 0.	1927 0	2533 D. TAS	2843 0.	3454 0.	3760 0. FORM	••	4676 A.	ä
E78-16 ON O4 APR 78 30 SECOND GJLL-ROSE AMFERVAL STARTI	OISTRIGUTIONS (NUMBER/H*3-MH) SIZE CLOUD SIZE PRECIP (HU) RROSE (HU) PROBE	AL 26 0. 437 1.65E+01	706 0. 55+04 1011 0. T	1,59E+03 1627 0. FPT	9.29c+02 2233 0. TAS	7.56E+62 2538 0. 1 0. 2843 0.	3149 0. 2	9.35:+02 3761 G. FOR4	4.83E+02 4065 D.	1.975+02 4574 0.	72-04 1.415-05 1. 129 1.91	AFHL CIDOUS STUDY BY AFGL F78-16 JN 04 APR 78 30 SECOND BULL-RGSE INTEPVAL START\$	DISTRIBUTIONS (NUMBER/M+3-M4) SIZE FLOUD STREEF (HII) BODGE (HIII DOOGE		4.10E+04 1447 7	3,925+67 1011 0. T -47	87 7.017407 1316 0. 08 1.505404 1533 A. SDT	28 9,425+03 1927 0.	48 5,56E+U3 22*3 0. TAS 59 1,53E+O* 2538 D.	89 2.47F+03 2843 0.	30 0. 3454 0.	50 0. 3760 0. FORM	4470 0.	11 0. 4676 n.	404 6.25E-06 1. 63 191
STARTS	ISTRIGUTIONS (NUMBER/M*3-MH) SIZE CLOUD SIZE PRECIP (MU) RROSE (MU) PROBE	AL 26 0. 437 1.65E+01	5.55 - 0.4 10.4 10.4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	108 1,59E+03 1622 0 FPT	148 9.29c+02 2233 0. TAS	169 7.56E+62 2538 0. 1	209 0. 3149 0. 2	250 0. 3761 0. FOR4	271 4.83E+02 4365 D.	11 1.935±402 4570 U·	72-04 1.415-05 1. 129 1.91	4 APR 78 30 SECOND 1 APR 78 30 SECOND INTEPVAL START:	UTIONS (NUMREP##3-MM) SIZE PRECIP BOOBE (MIN DOORE		11E+09 26 3,18E+04 437 7	.50E+05 67 3,92E+07 1011 0. T -47	.00E+05 67 7.01**07 1316 0.	50E+05 128 9.42E+07 1927 0.	•50E+05 148 5•56E+0? 22*1 0• TAS •50E+05 169 1•53E+0* 2538 0•	*00E+05 189 2*47F+03 2843 0*	.50E+05	. 250 0. 3760 0. FORM	91 0. 4770 0.	311 Q. 4676 A.	404 6.25E-06 1. 63 191

AFWL CIRRUS STUDY BY AFGL FLIGHT E78-16 ON 04 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 19:v6:00 AFUL CIRBUS STUDY BY AFGL FLIGHTI E78-16 JN 04 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL STARTE 19:05:00

PRESS (MR)	277.24		ALT CKIN	89.6		7 -47.11C		FPT -48.00		TAS (PL'S)	137.01		Z 4.836-04		FORM F .26		NT (N/He+3)	3.5845E+01	TOTALS 1.64E-05 87
	PRECIP	PROBE		8.906-01	1.44E+00	•	•	•	•	•	•	•		•	•	•	•	•	7.55E-06 301
4BER/Mª3	SIZE	(HC)		437	706	1011	1316	1622	1927	2233	2538	2843	3149	3454	3769	4965	4370	4676	
UN) SNOITUG	CLOUD	∌P04€		å	•	•	•	•	÷	9.15E+#2	÷	8+14E+02	ċ	•		•	9.	•	8.84E-06
DISTPI	SIZE	Ş		56	47	29	87	100	128	148	169	189	509	230	250	271	291	311	
PARTICLE SIZE DISTPIBUTIONS (NUMBER/M#3-HM)	SCA4 TER	PROBE		3.12E+09	1.56E+08	2.47E+05	:	:	ċ	•	•	ċ	•	•	ċ		•	•	3.58E-05
2	SIZE	SE		æ	m	in :	^	σ:	#	2	‡	1 6	9	1 3	ಸ	ري دي	52	22	TNC 4E0 0
	-	_																	HF
PRESS (MB)			ALT CKIE	9.68		T -46.95C		FPT -47.20		TAS (MVS)	137.72		Z 5.53E-05		FOR4 F1.65		NT (N /He# 3)	1.1137E+00	TOTALS 4.11E-06 I
PRESS (MB)	ECIP 277.28	ROBE	ALT	4.81E+00 9.68		0. T -46.95C	•	0. FPT -47.2C	•6	D. TAS (H/S)	137.72	•	0 . Z 5.53E-05	•	0. FORM F1.63	•	0. NT(N/N**3)	0. 1.1137E+00	
PRESS (MB)	ECIP 277.28	ROBE	ALT	4.81E+00	•0	⊢		1622 0. FPT -47.2C	•	O. TAS	•	•	•	•	•	•	•	. 0	TOTALS 4.11E-06
(NUMBER/M+3-MM) PRESS (MB)	D SIZE PRECIP 277.28	E (MU) PROBE	ALT	437 4.01E+00	706 0.	1611 D. T	1716 0.	1622 0.	1927 0.	2233 0. TAS	2538 0.	2843 0.	3149 0.	3454 0.	3760 0.	4065 0.	-0 0.cm	. 0	TOTALS 4.11E-06
(NUMBER/M+3-MM) PRESS (MB)	D SIZE PRECIP 277.28	E (MU) PROBE	ALT	0. 437 4.81E+00	0. 706 0.	D. 1811 D. T	1316 0.	0, 1622 0.	0. 1927 0.	0. 2233 0. TAS	n. 2538 D.	0. 2843 0.	3149 0.	0. 3454 0.	3760 0.	0. 4065 0.	0. 4370 0.	4676 0.	TOTALS 4.11E-06 4.11E-06 191 191
(NUMBER/M+3-MM) PRESS (MB)	D SIZE PRECIP 277.28	(MU) PROBE	ALT	0. 437 4.81E+00	47 0. 706 0.	67 0. 1811 0. T	1316 0.	0, 1622 0.	0. 1927 0.	0. 2233 0. TAS	n. 2538 D.	0. 2843 0.	3149 0.	g. 3454 D.	3760 0.	0. 4065 0.	0. 4370 0.	0. 4676 0.	TOTALS 4.11E-06 4.11E-06 191 191

PRESS (MB) 277.33	ALT (KM)	9.68		1 -47.080		FPT -48.30		TAS (M/S)	135.67		2 0.	;	FORM FC. 00		NT (N /H+#3)	•	TOTALS	•
T-MM) ORECIP PROBE		•	•			•	•									•	•	
INUMPER/N* STZE (MU)		437	106	1811	1,16	1622	1927	2233	2538	2843	3149	4674	3760	4065	4370	4676		
CLOUD CLOUD		ó	•	•	.		é	ċ	•	ċ	•	•	å	ċ	•	•	•	
SI ZE		56	7 4	29	87	106	128	148	16,	189	209	230	250	271	291	311		
PARITOLE SIZE DISTRIBUTIONS (NUMPER/N#:-MW) SCATTER STZE CLOUD STZE OR PROBE (MU) PROBE (MU) P		3.20E+49	1.61E+03	•	•	ć	•	•	÷	:	•	:	ġ	•	•	:		2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
SIZE (MU)		~	m	ĸ	~	σ	#	23	1		1				52	27		450 0
PRESS (HB) 277-16	ALT (KM)	69.6		T -46.87C		FPT -47.7C		TAS LAWS)	136.39		Z 2. t.E-04		FORM F . 91		NT (N / N * 4 3)	4.2590E-01	TOTALS	301
ECIP	ALT		9.49E-01	-	•	0. FPT -47.7C	•	D. TAS .MYS)	136.39	•	0. Z 2. t .E-04	•	0. FORM F + 91	•	0. NT(N/H**3)	0. 4.2590E-01		4.39E-60 4.59E-60 301
ECIP	ALT	5.88E-01	9.49E-01	٠.	•	•	•	•	•	•	3149 0. Z 2. t.E-04	•	•	•	•	•		
TIONS (NUMBER/N#3-MH) TLOUD SIZE PRECIP OROGE (HU) PROBE	ALT	5.88E-01	9.49E-01	٠.	•	•	•	•	•	•	•	•	•	•	•	•		
TIONS (NUMBER/N#3-MH) TLOUD SIZE PRECIP OROGE (HU) PROBE	ALT	5.88E-01	9.49E-01	٠.	•	1622 0.	0. 1927 D.	0. 2233 0.	0. 2538 0.	9. 2543 0.	3149 0.	3454 0.	n. 3760 0.	0. 4965 0.	n. 4378 0.	•		
THUTIONS (NUMRER/N#3-MH) TLOUD SIZE PRECIP PROGF (MU) PROBE	LTV	26 9. 437 5.88E-01	9.49E-01	67 0, 1911 0. T	•	1622 0.	0. 1927 D.	0. 2233 0.	0. 2538 0.	9. 2543 0.	3149 0.	3454 0.	n. 3760 0.	0. 4965 0.	n. 4378 0.	0. 4676 0.		

FLIGHT E79-16 JN 04 APR 78 30 SECOND AVERAGING TYPE: BULL-905E INTERVAL START: 19:05:30

AFWL CIRPUS STUDY BY AFGL FLIGHT E78-16 CN 14 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 19:06:30

Appendix D

Selected 30-sec Average Particle Distributions From the Flight of 5 April 1978

Thirty-sec averages are provided for a selected portion of the 5 April 1978 flight. During other times, activity was minimal.

AFWL CTRRUS STUDY BY AFGL
FLIGHT E78-17 JW 5 APR 78 30 SECOND AVERAGING
IYPE: EULL-ROSE INTERVAL START: 17:25:61

FLIGHT E78-17 IN 5 APR 78 30 SECOND AVERAGING TYPET BULL-203E INTERVA, STAPT: 1712-610)

PRESS (MB) 499.33	ALT (KH) 5.5A	T -16.78C	FPT -41.10	TAS (H/S) 136.94	. O .	FORH FL. UG NTCV/H++31	TOTALS
		,	_			w 2,	•
PRECIP	9.		• •			• • • •	• • •
(NUMPER/H+3-4H)	437	1311				5700 4065 4470	
0157R13U*10NS (N STZE 7L0UD (*U) 2R09E	٠.٠						
	25 47	57 87 148	128	169	236	271	
PARTICLE SIZE (ZE SCATTER (U) PROSE	2.55E+07		::	;;,	•••		2.225-07
312E (HU)	NE	v ~ w	# 24	3 10 2 T 41 7	253	25.2	0 C C C C C C C C C C C C C C C C C C C
PRESS (MB) 495.93	5.57	FPT -40.30	TAS (H/S)	121.91	FORY FL.C3	NT (N / H++3) 0.	TOTALS 0.
CIP							<i>د</i> .
-MM) PRECIP PROBE	606				00	.	•
NUMBEP/M*3-MM) SI ZE PR (MU)	437 766 1111	1316	72.0	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	3454	4.65 437J 4576	
TONS (SLOUD PPD9E	;;;¢				င်္	::;	÷
812E 812E (4U)	26 47 67	103 103 103	9 6 6 1 4 4 1 4 4	189	23: 25u	311	
PARTICLE SIZE DISTOLIUT SCATTER SIZE PROBÉ (MU)	2.7.E+07 0. 0.	• • •	3, 2.78£+u5	;.	• • •		1.645-00
8125 (MU)	. m.m.	۳.,	# ÷	25	3 5 2	3.5.5	TWC 4.0 D

AVERAGING 17:25:30	
E78-17)N 5 APR 75 S SECOND AVERAGING BULL-POSE INTERPRACIAGES	
4 5 678-17 3N 5	
FLIGHT TYPE:	

AFUL CTRRUS STUDY BY AFGL
TYPE! RULL-ROSE TYPEN START! 17:26:30

PRESS (MB)		ALT (KR)	44.4	T -16,520		FPT -41,50	TAS (M/S)	142.11	4 4 7 7 7 6	20-21-0 7	FOR* FC.03	NTC4/Hears	•	FOTALS	3. 82E-06
H)	PROBE														•
87 PF 3-NP SIZE F		27	90	0 11	9.0									•	•
MRER/ SI		3	~	191	131	261	223	2533	316	540	376	437	487		
JITONS CHU SLOJO	11	3.005+04	•	÷.	- 3		;		•	•	•••	•	•	3.825-46	6.2
SISTAL BUTTONS (STATE SLOJO	<u>}</u>	5 6	25	67	176	128	8 c 4 4	186	503	 	27.5	291	211		
PARTICLE SIZE : SCATTER PROBE	!	3.08£+07	•			•	• •		•		•		•	2.685-07	8
14 37.15 37.15	•	۰.	n ti	~ ~	G.	7:	44	£.	9 9	5 3	5	2 %	i	INC	
ည်	ALT (KH)	5,26	T -16.720		FPT -40.7C	TAS (M/S)	131,85		• • • • • • • • • • • • • • • • • • • •	FOR4 FC. UL	100000000000000000000000000000000000000	0.0		101ALS	-
PRECIP PROBE					•	• •		•							>
S175 PF	, ,,	7.5	1311 0	1716	1522 3	2733 0		3163						0	
SLOYD SLOYD PRAGE	•	•	•		• •		•,	• •	•	3.	• •			·.	ì
01STP18U S12E (1U)								239							
PAKI (CLE SIZE DISTRIBUTIONS (SCATTER SIZE 9LOUD PROBE (40) PROGE	2.7.6+07	0.	•	• •		•	•	18	•	<u>.</u>		;		2.35E-07 2	
3175 (PU)	~	m	w t	. 11	` ;;	75	÷ ÷	18	£ ;	7 5	25	22		1XC 4ED D	

AFWL CTPRUS FIUDY BY AFGL FIGHT E78-17 ON 5 APR 78 30 SECOND AVERAGING FYPE: BULROSE INTERVAL START: 17:24:00
FLIGHT E78- FYPE: BUL.
AFNL CTRRUS STUDY BY AFGL FLIGHT F78-17 ON 5 APR 78 38 SECOND AVERAGING IVDES BYLL-ROSE INTERVAL STARTS 17:27:0)
AF#L 678-17 ON 84LL-40SE
FLIGHT

PRESS (MB) 497.35	ALT (KH) 5.61	T -16.77C	FPT -43.80	TAS (M/S) 150.43	• 7 2	FORM Fuels	NT (N / K++3) 0+	101ALS 3. 0
3-MM) PREGIP PROBE								•
CNUMBER/HT SIZE CHU)	437	1011	1622	2533	7 # # # # # # # # # # # # # # # # # # #	2760 4765	4676	
T GUT TONS CLOUD PROBE	• • • • • • • • • • • • • • • • • • •	• • •		٠ د د د	- 0	• • ir 3	• • •	•
E 315TP] S1 ZE (4U)	25	6 64	10A 128	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	6.7	37.1	311	
PARITCLE SIZE DISTPIGUTIONS (NUMBER/M+3-MM) SCATIER SIZE PR PROBE (4U) PROBE (MU)	3.27E+07			•••	90.		•••	2.85E-07
SIZE (MU)	n) m	. r. r	~ #:	2 4 4	£ 4 6	12:	S &	1 MG 4
PRESS (MB) 498.01	5.63	-16,530		145.83	Z 0.51E-08 FORM F4.40	NT CN /NOF 3)	;	3, 73E-06 22
	4	·•- {	104	<u>.</u>	2 6	777	•	ю
A) PROBE	::	· (Z	MT		n
STZE PRECIP (MU) PROBE		• • •		20000000000000000000000000000000000000	•••		•	£ 0 • 0
(NUMBER/N#3-) STZE (HU)		• • •			•••		•	3,735-66 0. 3
(NUMBER/N#3-) STZE (HU)	2.935+04 437 0.	1311 0. 1316 0.	10 1000 C		3. 3149 G. 0. 3760 G.	OF SHEET OF STATE OF	0. 4676 9.	0 • 0 9 2
PA>TICLE SIZE JISTZI JUTTONS (NUMBER/H#3-M4) SCATTER SIZE CLOUD SIZE PRECIP PROBE (HU) PROBE (MU) PROBE	2.935+04 437 0.	1311 0. 1316 0.	10 1000 C	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	3. 3149 G. 0. 3760 G.	OF SHEET OF STATE OF	0. 4676 9.	0 • 0 9 2

	17127131	
COUNTY OF AFEL	E73-17 34 5 APP 78 30 SECOND BULL-ROSE INFRVAL STARTE	
702273	5 APP 1	
	673-17 JW BULL-4055	
	FLI3HF TYPE1	

AFWL CIRRUS STUDY BY AFGL SACOND AVERAGING 1YPE: BULL-ROSF INTERVAL START! 17120130

PRESS (MB)	ALT (KH)	5.62	T -16.82C	FPT -43.90	TAS (H/S)	156.55	•0 2	FOR4 FG. EJ	NT(4/H+#3)	TOTALS
PRESIP	PRORE			• •	•••	••		•		
UMGER/H#3=	SE E	444	101	1622					4370	
JUTEONS CI	HONE.	;;	• •	ě,	::	: 6	• •	• •		;
ST ZE	6	6.7 7.0	67	100	4 F	691	230	271	311	
PAKICLE SIZE DISTRIBUTIONS (FUMBER/N+3-FM) E SCATTEP SIZE GLOUN SIZE PRI	3 2 1 5 4 13 7	.0	••	;					;;	2.626-07
SIZE CHU	^	1 89 (n v	π τ	124	94	353	38	S &	INC
PRESS (MB) 497.30	ALT (KH) 5.61	100	2//*47	FPT -43.30	TAS (M/S) 148.70	2 0.	00 03 800			TOTALS 0.
MM) PRECTP PROBE				. .;	•••	::			•	•
JABER/N#3-NH) SIZF PR 'NU) F	437	706	1316	1927	2233	3149	3454	4365	4575	
UTIONS CRE CLOUD PROBE		ė	.	; ;	•••	: ;	•••	.	• •	•
312E 312E (4U)	56	2,4	60	156	100 100 100 100 100 100 100 100 100 100	139 259	23¢	291	311	
PAKTICLE ST'E DISTATGUTIONS SCATIER SIZE CLOU PROBE (4U) PROB	.37E+07									.94£-07
Sog	m	<i>•</i> •	ė.	• •	2 4	3 3	3~	9 :	6	Ň

A-WL CIRRUS STURY BY AFGL FLIGH! E78-17 CN 5 APR 76 30 SECO! AVERAGING fype: Bull-pase Interval Start: 17:34:63
A CHL CIRRUS STUDY BY AFGL FLISHE E78-17 JN 4 APR 73 SECOND AVERISING TYPE: BULL-203E IN EPVAL START: 17129141

PRESS (MB) 496.71	ALT (KH) 5.62	1 -16.960	FPT -45.80	TAS (H/S)	7 0.	FOR4 FU. wJ	NT (N/H++7)	•	TOTALS	e	AVERAĢING 17130130
PEP/443-MM) SIZE PRECIP	(MU) PR382 437 3.	1311 0.	1716 J. 1622 D.	1927 J. 2233 A.	255 5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	4465 De	4576 0.		• 6	AFHL CIORUS STUDY GY AFGL 7 7 5 APR 76 30 SFCOND AVERAGING 403E INTERVAL START1 17130130
PARTICLE SIZE DISTRIBUTIONS (NUMBED/443-44)	(41) PROPE	200	,	100 P	169 169 10	234	27.4	291 J. 311 0.		e e	AFML CIPQUS E78-17 JN 5 APR BIML-ROSE
PARTICLE SIZE O	(4U) PROBE	2 3.86E+0/	.00		10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	19 00.	21 0. 23 3.	23. 5.		1MC 3.31E-0/ 1ED D 2	FLX 3AF E TYPE:
PRESS (HH)		5.62	T -16.96C	FPT -44.5C	TAS (#/S) 150.63	*0 Z	FOR4 FL.UD	HT (N / H** 3)	•	TOTALS (ERAGING 629:33
	ECIP POBE	* 0 A E 3		0 C P P P P P P P P P P P P P P P P P P	200000000000000000000000000000000000000	2843 0. 3149 0.	3454 J. 376J J.	4965 0.	L576 J.	•	STUDY BY AFGL BAVERAGING TE 30 SECOND AVERAGING WITCHAN STARTS 17129133
•	ักพ	26 0.	67 5.	•	128 0.	150 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	247	271 3	34: 0.	•	Z AFML CIPAUS STUDY BY AFGL FLISH: F78-17 IN 5 APR 7F
	SATICLE SIZE DISTRIBUTIONS SIZE SCATTER STZE CLOUR SIZE SCATTER (HU) PROB				11 0 11	**************************************	• • • • • • • • • • • • • • • • • • •	23 0.	25 0.	3.292	c

PRESS (MB) 496.36	ALT (KH)	20.00	-16.750	FPT -46.20	TAS (N/S)	153,09	. 7 2	FOR4 FU.L.	NT (4/H++3)		TOTALS		
ž	4		-	ŭ	2		2	Œ	2	•			
PRECIE	PROBE	• •		••	••	٠.	• •			ċ		•	
NUMBER/M#3- STZE	S. C.	437	1111	1522	1927	25.38	2169	3454	4370	4576			
UTIONS ()	9804	: ,	• •	.		;;	• • •	••	់៖	: :			•
01ST913	(S	56	6 t	101	82.	169	189	230	274	311			
PARTICLE SIZE DISTRIBUTIONS (NUMBER/MAS-HH)	PROBE	5.38E+07			::			•••		• •		4.69E-07	(u
4	11 ZE (MN)	~	mu	n ~ (-		199	35				LMC	4F0 0
PRESS (HB)	496.82	ALT (KH)		T -15.920	FPT -45.30	TAS (M/S)	151.39	2 n.	FOR4 FU. 00	NT (N/Hee3)	•	TOTALS	;
77	PRECIP		. 6		•	 				•••	;	•	•
9 9 9	OUD STAF PRE	10-1	437	1	151	1927	253	345	* ** * ** * **	2 4	194		
	UTTONS (N	240aF	ċ	;;	.;			;;	; :	÷ 6	•		ċ
,	7157213 S126	Ş	56	57	10.5	128	1 4 1 6 1 9	189 209	233	571	311		
	PARTICLE SIZE DISTRIBUTION SCATTER SIZE	PROBE	3 516+97			• •	;.	;.		•	•	;	3.32E-07
	PA 2	19	c .	· •• · ·	· ~ ·	T #	32	: 11 ±	441	55	5 6	3	INC CHO

Ł

AFML CIPRUS STUDY RY AFGL
FLISH: F78-17 3N 5 APR 7F 3D SECOND AVERAGING
TYPL: BJLL-FOSF ANTEPVAL START: 17429:33

FLIGHT E78-17 IN 5 APR 78 30 SECOND TYPE: PULL-ROIE INTERVAL START!
FLIGHT E78-17 DH TYPE: PULL-ROIE
AFML CTOPUS STUDY BY AFGL FLIGHT E78-17 7N 5 APR 78 30 SECOND AVERAGING TYPE: RULL-303E INTFKVAL START: 17:31:03
FLIGHT E78-17 JN TYPE: RUL103E

FATICLE 51ZE DISTRIBUTIONS (NUMBEZ/M*3-MH) SIZE GATTER SIZE DISTRIBUTIONS (NUMBEZ/M*3-MH) FROSE (4U) PROSE (4U) PROSE (4U) PROSE (1U) PROSE (PRESS CHB)	496,07		ALT CKH	F. 6.4		7	20001.		FP1 -46.6C		TAT CH/Si		122.60		40-030	00-040-0		FORM Fire of			(の・・エヘア) ここ			101405	3.535-00	
STATE SIZE DESTEINTENS (NUMBER/AMS) STATE PRESS (AB) STATE PRESS (AB) STATE PRESS (AB) STATE PRESC	- H - 2	PRECIP	FR09s		į		•	•	•																-	,	
STATE SIZE DESTEINTENS (NUMBER/AMS) STATE PRESS (AB) STATE PRESS (AB) STATE PRESS (AB) STATE PRESC	MREP/N#1	SIZE	(DE)		4.47	705		1	1316	1667	1327	2233		(7.43	2443	7 12	4 1	74.54	3763	7.06.5		253	45.76				
STATE SIZE DESTEINTENS (NUMBER/AMS) STATE PRESS (AB) STATE PRESS (AB) STATE PRESS (AB) STATE PRESC	BUTIONS (NU	CLOUD	PROGE		2.775 + 04			•	•	ق	÷	.0		:			•	•	•		•	•	•		4. E 27. A	232.0	
STATE SIZE DESTEINTENS (NUMBER/AMS) STATE PRESS (AB) STATE PRESS (AB) STATE PRESS (AB) STATE PRESC	JISTRI	22.22	(46)		26	*	7		õ	108	128	871		103	1.89	200		23.	555	271		2 4 7	111				
STATE SIZE DESTEINTENS (NUMBER/AMS) STATE PRESS (AB) STATE PRESS (AB) STATE PRESS (AB) STATE PRESC	ATTOLE SIZE	SCATTER	PROB:		5.025.07			; .	•	;	9.	;		•		;	•	•	:	•		•	• >		70-1,61	2	
SCATICE 5.2E DISTRIBUTIONS (NUMBEALM#3-#H) SCATIE 5.2E PRECIP NOBE 4.0D SIZE PRECIP Nobe+07 25 0, 437 7, 0 67 0, 1316 0, 0 77 1 1316 0, 0 77 1 1316 0, 0 77 1 1316 0, 0 128 7, 118 0, 0 158 7,	ğ	31 23	ŝ		٧.	~	r	, ,		œ	1	12	3	•	.c.	2.8	:	ñ	2	23		5	27		CK.	4:00	
	PRESS (AB)	460.14		ALT (KH)	5.63		T -16.590			FPT -46.40		TAS (H/S)		20 ** C Y		2 0.	;		FORM FC. CU		17 10 / 10 86 71	C	•	701415		,,	
Y TICLE SIZE DISFEIJUTIONS SCATIE SIZE GLUJD PROSE 4.06 E + 07	(NA.	PRECIP	360Ad						•	;	ċ	•		•	-	•		•			-	•	3.		• 0	.s	
Y TICLE SIZE DISFEIJUTIONS SCATIE SIZE GLUJD PROSE 4.06 E + 07	UMBER/H#3.	S12E	() ()		437	934	1011	4 4 4 5	640	1642	1927	7233	25.7.8		7 7 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	31 49	77.67	70.	22.00	4065	1.27		4257				
PAYIGE SIZE (MU) SIZE (MU) PROBE (MU) SIZE (MU	٠,	CLOJO	PROJE		ć	•		; ;	•	.	•	ċ	ċ	:	;	•	ند	:	•	ċ	٠,	;	•		9.	•	
PAYTICLE SIZE (MU) PROBE 2 ".066407 3 0.0 11 0.0 12 0.0 14 0.0 15 0.0 16 0.0 17 0.0 18	DISTEL	3215	3		5 2	` ;	6,	87		e :	128	1 4 A	٠ م		5 8 1	239	2.2	3 (250	271	294		311				
2 (49; 74; 74; 74; 74; 74; 74; 74; 74; 74; 74	TICLE SIZE	SCATIO	PROBE	•	4.86E+07	ċ	•			:	;	,	•		•	•		: .	:	•			•		4.246-07	~	
	4	>1 2-	î K	1	ν,	m	٠,			Τ.	7	75	-		C	<u>.</u>	۴	;	77	23	52	;	7		TKC	4E-0 13	

PRESS (MR)	, o	ALT (KM)	5,63		T -16.73C		FPT -46.7C		TAS (M/S)	155,77		Z 0.		FOR4 FOLLS		NT (4/H++3)	•0	TOTALS 0. 0	
	PKECIF	100 1				2		•		•	•		•					•	
JFRC2/H+3.	5125		437	706	1111	1316	1622	1351	6233	2438	2863	3149	1621	3760	4065	4373	9295		
TUTIONS (A	SIZE CLOUD SIZE PKE	300	•	ċ	;	,	•	•	ċ	••	;	÷.	;	0.	9.	;	÷	•	
101210	51 36	2	56	4	23	3,	118	128	148	169	4.89	209	230	250	271	291	311		
STICLE SIZE	ZE SCATTER		2.20c+07			ė	:	; ;	•	÷	;		٥.	÷.	•		:	4.53E-07	
P.A	32 IS	•	۷.	•	v.	~	Τ	77	12	‡	16	28	19	57	23	52	27	INC 4ED D	
PRESS (MR)	496.12	(K.H.)	5,63		1 -16.600		FPT -46.6C		TAS (M/S)	154.69		8, 086-38		DR4 Fu.03		(いきない)	÷	TOTALS 3.55E-06 22	
ď		₩			•-		u		-			~		ŭ		Ŧ	9		
	SRECIS SPORE	#	•	ċ		•			٦.										
			437 0.	•	10t1 0.	•	•	ċ		•	•	•	•	•		•	•		
(NUMBFR/He3-HH)	SIZE PRECIP		404.6	104 0.		1316 0.	1622	1927 0.	•	2535 6.	2844 3.	3149 9.	3454 0.	3760 3.	4465 3.	6373 0.	4575 0.	3,55°-06 6. 22	
(NUMBFR/He3-HH)	SIZE PRECIP		2.79: 4rt	*** **** ***	ا ق	0. 1316 0.	1662	1. 1927 0.	2233 0	2535 6.	2844 3.	51.49 9.	3454 0.	3760 3+	0. 4465 3.	. 6. 6.375 O.	0. 4575 0.	51~06 22	
(NUMBFR/He3-HH)	SRECIS SPORE		2.79: 4rt	*** **** ***	ا ق	0. 1316 0.	1662	1. 1927 0.	3. 2233 0.	2535 6.	2844 3.	51.49 9.	3454 0.	3760 3+	0. 4465 3.	. 6. 6.375 O.	0. 4575 0.	51~06 22	

FLIGHT 278-17 JN 5 APR 78 30 SECOND AVERAGING TYPE: BULL-POSE INTERVAL START: 17:31:33

FLIGHT LT9-17 3M 5 APR 76 30 SECOND AVERAGING TYPL: BULL-ROSE INTEKNAL STAFT: 17:321:30

FLIGHT E78-17 JN 5 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 17:33:89 FLISH E78-17 3M S APR 78 38 SECOND AVERAGING TYPE: GULL-ROSE INTEPVAL START: 17:34209

PRESS (MB) 495,96	ALT (KN) 5.63	1 -16,590	JAS (M/S)	2 0.	MT (N/H++3)	FOTALS 6.
-HM) PRECIP	13 180 190 190 190 190 190 190 190 190 190 19		•••	000		
(NU48EP/M+3-HH)		1716	2233	2443	4065	
TBUTIONS (.		ด์ต่อ่า		ć
E DISTR	***	67 87 108	# # # # # # # # # # # # #	209 209 230 254	311	
PARTICLE SIZE !	7.195+07			••••	::::	6.53E-07
S12E	ผพ	n~ o;	# N # 1		888	0 0 EF
PRESS (NB)	ALT (KH) 5.63	FPT -46.70	TAS (H/S) 156.01	Ž. D. FORM FL. DD	NT (4/H**3) 0.	fotals 0.
-HH) PRECIP PROBE	.					•
(NUNGER/N*3-HM) Size Precip (Mu) Probe	400 PM PM PM PM PM PM PM PM PM PM PM PM PM					
CNUMMER/N#3=+ Size (MU)		1416 1622 1622 1623 1663 1663 1663 1663 16	. M & M & M		4370 0.	
CNUMMER/N#3=+ Size (MU)	700	0.000 PM PM PM PM PM PM PM PM PM PM PM PM PM	. M m m m m m m m m m m m m m m m m m m	44 64 64 64 64 64 64 64 64 64 64 64 64 6	5. 4870 0.	6
IGUTIONS (NUMMER/M+3-+ CLOUD SIZE PROGE (MU)	700	0.000 PM PM PM PM PM PM PM PM PM PM PM PM PM	. M m m m m m m m m m m m m m m m m m m	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5. 4870 0.	6

PROBE (HU) PROBE (HU)
FORES (MB) 51. ROBE ALT (KM) (MK) 54.5 ML (KM) 5.65 ML (KM) 15.65 ML (MVS) 15.65 ML (MS) 15.65
FORES (MB) 51. ROBE ALT (KM) (MK) 54.5 ML (KM) 5.65 ML (KM) 15.65 ML (MVS) 15.65 ML (MS) 15.65
FORES (MB) 51. ROBE ALT (KM) (MK) 54.5 ML (KM) 5.65 ML (KM) 15.65 ML (MVS) 15.65 ML (MS) 15.65
FORES (MB) 51. ROBE ALT (KM) (MK) 54.5 ML (KM) 5.65 ML (KM) 15.65 ML (MVS) 15.65 ML (MS) 15.65
FORES (MB) 51. ROBE ALT (KM) (MK) 54.5 ML (KM) 5.65 ML (KM) 15.65 ML (MVS) 15.65 ML (MS) 15.65
8 60 8 8 9 8 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
7.42E.U.Z. DISTRIBUTIONS (NUMBER/NESS-HH) PROBE (MU) PROB
7.42E-12 SIZE DISTRIBUTIONS (NUMBER/HS- PROBE (MU) SIZE (MU) 7.42E-47 26 0. 437 6. 67 1. 1316 6. 67 1. 1316 6. 67 1. 1316 6. 6. 66E-67 0. 2549 7. 2754 7. 2754
7.42E+U7 CMU) PROSE 7.42E+U7 CMU) PROSE 0.00000000000000000000000000000000000
7.42E SICE OILSTEN SICH OILSTEN
PROPER ME PROPER

FLIGHT E78-17 IN 5 APR 75 30 SECOND AVERAGING TYPE: BULL-40:E ENTERVAL START: 17:33:33

AFML CIRRUS STUNY BY AFGL FLIGHT ETB-17 ON S APR TB 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL STARTE 1713430

35.58 36.58	,	₹.8 £.3	- 1	9.580	-49.40	:	(H/S)	123,71			F0.00	6		TOTALS		æ		(HB)	CK H	3, 50	9.630	9. 4C		25.00			00	(6.	
PRESS (MB) 280.96	;	<u>.</u>	•	J 1	FPT -		485	7	2 0.		FOR	HT (4/H==3)	•		•		averaging 18 12 21 31	PRESS 28	14.7		65- 1	FPT -49.		145	•	5	FORM FL. 00	NT (4/H==3)	ċ
-MH)	PPOBE	•	ġ,	•	. 0	.0	•	•	•	•	•	• •	••		• 0	-	F AF GL 30 SECOND AV	PRECIP	300			• •	.	•		• •	: .		•
(NUMBER/H*3-	ê	437	406	1316	1522	1927	2233	25.50	3169	3454	2767 LN65	437	4576				STUDY 9Y A 78 30 NTEPVAL ST	SIZE				1522							
TZONS (NU) GLOUD	FKOSE	•	•	•	•	•	• •	• •	•	ė	• • •		•		•	.	CIPRUS S APR I	TONS (NUM)											
DISTAL GUTZONS SIZE GLOUD	500											362		•	2		A FN L E78-17 JN BULL-ROSE	DISTRIBUTIONS (NUMBER/H+3-M4) SIZE CLOUD SIZE PR				108							
ARTICLE SIZE SCATTER BRODE	300	3.216+03	1.03E+UG	•	å	•	• •		•	• 6	• •	•	•	375.06		v	FLIGHT E	NATICLE SIZE SCATTER PROBE		9.966+07	••		• •	•	• •	•	• •		•
PA:		۸۱ ۳	າທ		œ.	1 .	4 4	10	7	î î	33	52	ŏ	2	- C-			312E				o ÷							
PRESS (#8) 281.43	ALT (KH)	94.58	7 - 49.54C		FPT -49.40		191.23		· D 2	Story Ellering		(Peak/ 7) LX	.	TOTALS	;	•	averaging 18121/33	PŘESS (NB) 201.05	ALT (KHI 9.59		1 -49.530	FPT -49.40	TAS (H/S)	122.27	2 0.	1	20.97 FX07	MT(4/H**3)	*
PRECIP	1000	•				•			•	•	•	•				•	BY AFGL 30 SECOND A L START: 1	***) PROBE	•			•		÷ •	• •	÷.			•
CNUMBER/Med-MM) STZE PRECIP		437	1111	1316	1622	1361	25.50	2843	6112	3475	4165	6373	0				STUDY BY 78 30 INTERVAL S	(NUMMER/M#3-##) SIZE PRECIP (4U) PROBE	437	106	1116	1622	2233	2539	3143	1454	14 65 14 br>16 16 16 16 16 16 16 16 16 16 16 16	4370	; }
SIZE GLOUD		÷		ė	ė	i	.	6	ċ			.	:	ć	:	•	. CT&	SIZF CLOUD SR2F CLOUD	• •	•	• •	•		.	;;	.		••	:
		56	6	8	108	924	0 0 1 4 1 4	189	573	2000	271	291	116				AFNL F78-17 ON BULL-ROSE				96	108	94	169	503	67. E	272	291 311	ļ
PARTICLE SIZE SCATTER PROME		3.22E+09	0.		•	• •			•		::	•	•	1.315-05		•	FLIGHT	ATICLE SIZ SCATTER PROBE	3.085+09	3.46E+07		· •		.		•	::	••	•
										_		53.			202			PA: 31 ZE (MU)		en e		6 1				. -		۸.	

ì

FLIHI E76-17 ON 5 APR 76 30 SECOND AVERAGING TYPE: BULL-ROSE INFFVAL START: 18:24}03
FLISH
CERRUS STUDY BY AFGL 5 APR 78 30 SECOND AVERACING INTERVAL START: 18:23:89
BY AFGL 30 SECO
GIRRUS STUDY 5 APR 78 IMTERVAL
_1
FLIGHT E76-17 ON TYPE: BULL-ROSE

PRESS (MB) 280.51	ALT (KM) 9.61	T -49.650	FPT -49,40	TAS (N/S) 127.89	2 2. 845-04	FORY F . 91	NT (N / Mee3)	TOTALS 5.44E-86 301
3-MH) PRECIP PROBE	6.408-01			•••	.	••	••	5.44E-06 301
CNUMBER/H* S1 ZE (MU)	484	1316	1622	2233 2538 2643	64 4 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4763	4676	
TGUTTONS CLOUD PROSE	•••	. ;	:	ئەت د ئەت د	.	• • • •	• •	•
. 015TP S12E (9U)	26	6 6 V	861 128	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	200	271	311	
PARTICLE SIZE DISTRIGUTIONS (NUMBER/M+3-MH) E SCATER SIZE CLOUD SIZE PROBE (MU) P	3.28E+09 1.04E+08	• •		•			::	3.43E-05
\$1.2E	NM	w + 0	`a:	:395	322	18.2	; 5	INC 4ED D
67 - 38	9.60 9.60	2 9	3 · 6 · 1	125,75	90 0	2	;	TOTALS
PRESS (MB) 286.79	֧֧֭֓֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞֜֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞֞	1 - 49.00C	100		FORT FO.00	NT (V / Mee x	•	
ROBE			74.		•	* X / 7) LX	0.0	0 0 0
ROBE							0 .0	å
(MUMBER/M*3-MM) SIZE PREGIP E (MU) PROBE	447 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0		200 100 100 100 100 100 100 100 100 100	000	3750 04	4765 0.	4576 0. 0.	å
(MUMBER/M*3-MM) SIZE PREGIP E (MU) PROBE	70 00 000		00 - 00 - 00 - 00 - 00 - 00 - 00 - 00	2538 0. 2543 0. 3149 0. 7 0.	UNTUR O	10 tabes 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	7, 4576 0. 0.	• • • • • • • • • • • • • • • • • • • •
(MUMGER/M#3-MM) Size Precip (MU) Probe	70 00 000		00 - 00 - 00 - 00 - 00 - 00 - 00 - 00	0. 25536 G. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	UNTUR O	10 tabes 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.	7, 4576 0. 0.	• o o

PRESS (MB) 280.33	ALT (KH) 9.61	T -49.68C	FPT -49.40	(A/S)	Z 0.	FOR4 FG.00	NT (N / H++3)	TOTALS 0. 0	र है। है। जिल्लाक क्षेत्रक है। जिल्लाक क्षेत्रक है।
*3-MM) E PRECIP	1904	• • • • •						e 6	of the state of th
(NUMBER/N)	437	200	1622	223	3.00	3760	4470		The section of the section of
T BUTTONS CLOUD								•	र्गोद्दर्सा गुज्यकेन दो, प्रत्यन हे ज्ञाद
E DIST	28	6 6	108	8 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	200 200 200 200 200 200 200 200 200 200	22.0	311		(1) 1 mm (1) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
PAATTOLE SIZE DISTRIBUTIONS (NUMBER/M*3-MM) SGAPTER SIZE CLOUD SIZE PR PROBE (41)	3.32E+09 1.1.11E+08		••	• • •			•••	3.5uE-05	ા કો પણ ખેતા વ્યવસાય કહ્યું કે ફેલ્સ
3125	NI PO	so ~	œ덕·	224	1 2 5	3 53	22	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	करें कि एक ते होता
SS.	ALT (KH) 9.60	T -49.61C	•	(AS (H/S) 126.44	.0 2	FOR4 F0.00	MT (N / H++3)	TOTALS B. 0	in which shifts a feet square to see
PRECIP PROBE	•••	•••			90	• •	••	•	
NUMBERZHAN SIZE (MU)	106	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	1927	2533	844 84 86 86 86 86 86 86 86 86 86 86 86 86 86	0 (A)	4676		± KAZĀĢH⊅ « PROMA
UTIONS (CLOJD PROSE	÷ ; ;	• • •			.	::	•	•	no e e e e e e e e e e e e e e e e e e e
DISTRIS SIZE (4U)	84. 87.	\$ 60 E	0 0 0 7 7 7	100	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	272	311		हेर्न्यू है से हुन्हें के हैं है है है है है है है है है है है है है
PARTICLE SIZE DISTRIBUTIONS (NUMBER/M44-MM) SCATTER SIZE CLOJD SIZE PR PROBE (4U) PROSE (MU) P	3.32E+09 9.86E+07			.			::	3 • 4 3E • 45 2	o Szárá fősékiszti a ékk és főssá
31 ZE (HU)	ഡ F) £	\ ~ O	44	444	222	22.	12	140 460 0	eavermenter en
									THE PROPERTY CONTRACTOR CONTRACTO
<u></u>	=		أعت	<u></u>			**************************************		

AFML CIRPUS STUDY GY AFGL TYPE: BULL-ROSE SAPR 78 30 SECOMO AVERAGING TYPE: BULL-ROSE INTERVAL START: 16:22:30

AFNL CIRRUS STUOY BY AFGL FLIGHT E78-17 ON 5 APR 78 30 SECOND AVERAGING TYPE: BULL-RRYSE INTERVAL START: 18:24:38

FLIGHT ET8-17 ON S APR OF THE STUDY BY AFGL TYPE: BULL-ROSE TYPE: BULL-ROSE

JIRRUS STUDY BY AFGL 5 APR 70 30 SECOND AVERAGING INFERVAL START! 10125150	PRESS (MB)	ALY (KH) 9.62	T -49.540	TAS (H/S)	Z 0. FORM FE. 03	NTCH /H++3)	TOTALS
Y AFGL 30 SECOND START:	PRECIP	PROBE 0.	200		969	• • •	:
US STUDY BY AFGL PR 78 30 SEC INTERVAL START	NUMBER/H*3-HH)		1011 1316 1622	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	3454	4834 4834 4676	
AFNL CIRR E76-17 ON 5 A BULL-ROSE	SHOTTONS (CLOUD	, o	ခံ ခံ ခံ ခံ	666	• • • •		
F E78-1	SISTE	2,5	1000	444	25.5 25.5 25.5 25.5 25.5 25.5 25.5 25.5		
FLIGHT	PARTICLE SIZE DISTRIGUTIONS (N SCATER SIZE COUD PROBE (MI)	3.42E+09 1.04E+08	636	• • • • • • • • • • • • • • • • • • •		• •	3.55E-05 2
	312E (HU)	€/1 ×2 €/	► D = 1	2325	\$ 22.5	\$ \$	110 460 0
Averaging 14 (25) 50	8 g	46.T (KN) 9.61 7 -49.670	FPT -49.4C	120.44 2 0.	FOR4 FC. 00	U. TOTALS	•
SO SECOND	F PRECIP	 	• • • • • • • • • • • • • • • • • • •	000	•••	•	•
PR 76 30 SECOND INTERVAL STARTS	NUMBER/H+3 S12E (HU)	437 706 1011	2 4 4 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	2000	44464 4464 4464 4474	6576	
S	SISTRIBUTIONS (SIZE CLOUD (4U) GRORE						· ·
TYPEC BULLADSE	E DISTRI SPZE (4U)	9 7 7 P	11.28	26.9 26.9 28.9	222	117	
TELEN	PANTICLE SIZE : SOATTER PROBE	0	* • • • • • • • • • • • • • • • • • • •	300		3.51E-05	α
							_

FLIGHT E78-17 3N 5 APK 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18126:29
FLIGHT E78-17 IN 5 APR 78 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18:25/23

PRESS (MB)	279.69	9.63	T -49.37C	FPT -49.40	FAS (M/S) 131.55	2 0.	FOR4 FO. 00	HT (4 / H++ 3)	TOTALS
÷K5	0.00	00	••	• •	•••	0.6	•••	••	ě
(NUMBER/H*3		737	1316	1927	2233	3149	9449	4570	
OISTRIBUTIONS (C	BRORE C	= = =							9.0
ZE DIST SIZ	e.	u vo	20 2	1 2 3	989	2000	27.5	311	
PARTICLE SIZE O	PROBE 5. 35F+09	1.11E+08		::	•••		::	;	3.536-05
312	2	™ 10	~ 0	# 44	325	6 77	£ 5	2) L
PRESS (HB) 279.99	ÅLT (KH) 9.62	T -49.66C	FPT -49.40	TAS (H/S)	129.45	בטפא בי. פס	MT CN /HWW 3)	Totale	• • •
F3-MM) PRECIP		• • •				• • •		;	•
NUMBER/H S12 CMU	76.4 76.4	446 446 446 446 446 446 446 446 446 446	1622	2233	20 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	3764	4370		
SIZE GLOUD (HU) PROSE	::	• •			•••			ć	•
SIZE (MU)	28	96	126	100	666 666 666 666 666 666 666 666 666 66	230	311		
TICLE SIZE SCATTER PROBE	3.38E+09						: :	.565-05	N

INC 460 0

AFML CIRRUS STUDY BY AFGL
FLIGHT ETG-17 ON 5 APR 76 30 SECOND AVERAGING

	JO SECOND AVERAGING L START: 10:20159
32.15 ° (UH)	SS (MB) 279.47
~ M	ALT (KR) 9.63
ω.	T ~49.33C
· 6 = 4	
~ 4	TAS (N/S) 12 132.46 14
e en c	7.0.5
7 27	FOR4 FO.00 71
25.23	NT(4/H**3) 23
~	0. 27
	FUTALS INC

AVERAGING 18127,129
E78-17 JN 5 APR 76 30 SECOND OUL 40 SF INTERVAL STARTS
A S APR 76 TARES
FLIGHT TYPE 1

AFHL CIRRUS STUDY 97 AFGL FLIGHT E78-17 ON 5 APR 78 30 SECOND AVERAGING TYPE: BULL-20SE INTERVAL STARTE 18129329

(#6) 79. 34	(KH) 9.63	3.210	34.40	18,25		08.3	÷3)	TOTALS
PRESS (MB) 279,34	AL.T	÷	FP7 -	TAS (H/S) 135.25	.0 5	FOR4 FG. 80	NT (N / N ** 3)	0. 10
PRECIP	- C C C C C C C C C C C C C C C C C C C		. e					•
DISTRIGUTIONS (NUMBER/M+3-MM) SIZE GLOUD (41) PARAEL	10th	1011	1622	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	3440	3760 4365	4374	
RAUTIONS	• • • • • • • • • • • • • • • • • • • •			•••				ė
DISTRY SIZE	£ 25	87	128	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	230	272	311	
PARTICLE SIZE D SE SCATTER PROBE	3.11E+09				,		::	3.35E-05 2
SI ZE (HU)	N M	n 1 0	`#¢	444	223	222	36	ENC 4ED 0
PRESS (48) 279.21	ALT (KH) 9.64	FPT = 49.31C	TAS CHEST	133,26	EDD4 FL. 03	MT (N) was 13		FOTALS.
PRECIP PROBE		• • •		900			•	•
(NUMBER/N+3 SIZE (NU)	437 706	1316	1927	0 00 00 00 00 00 00 00 00 00 00 00 00 0	3484	4065	4676	
FOUTTONS (GLOUD PROBE	•••		.	.	••	: :	•	;
SIZE	2.5	108	4 4	4 4 5 6 6 9 9 9 9	230	291	311	
PA>TICLE SIZE DISTRIGUTIONS SCATTER SIZE GLOUD PROBE (4U) PROBE	3,32E+09 1,13E+08 0.	• •	.		÷ ;		•	3.52E-05
3215	N 10 H	~ ₩;	33;	111	22	2:2:	2	INC MED D

AFML CIRRUS STUDY BY AFGL FLIGHT ET8-17 ON 5 APR 78 30 SECOND AVERAGING TYPE: BULL-205E INFFRAL START: 16129153
AFML FLIGHT 678-17 OW TYPER BULL-405E
FLIGHT ET8-17 ON S APR 78 30 SECOND AVERAGING TYPL: GULL-RUSE INTERVAL START: 18:28:59
FLIGHT E78-17 ON TYPE: GULL-RUSE

18.855 (MB)	ALT (KH) 9.65	f -49.19C	,	7ÅS (M/S) 134,72	.0 2	FOR4 FL.CO	MT(H/H++3)	TOTALS 0.	Averagiug 18:39:29
3-KH) PRECIP PROBE	0 0	• • •	• •	•••	• •	••		•	0.00
(NUMBER/M+3-NH) STZE PR (MU)	603 B	999	1622	2223	ひずべい	3760	4370		CIRRUS STUDY BY AFGL 5 APR 78 30 SEC INTERVAL START
STZE CLOUD (MU) PROSE	e e		i:	;;;	;;	•••	••	÷	_
STZE STZE (MU)	5 7 7 7	9 6	100	9 6 6 9 7 7 7 7 7 7	200 200 200 200	250	311		AFWI E78-17 3N BULL-ROSE
PARTICLE SIFE SCATTER PROBE	3.15E+09		i i i	• • •		••	<i>:</i> :	3.365-45	FLIGHT
37.75 37.25 (40)	C4 4	10 K	°#:	2 4 9 S	67 FF	รี ถึ	¤ ≈	THC 4ED 0	
200	4) 1 (KH) 9, 63	1 -49.150		184.89	40 %	במים ביים	(n++#/7) L¥	101415	averaging 18829129
PRECIP PROBE		• • •					••	•	9 ×
CHUMBER/WS-HHA ST ZE PR (UP)	7607 CO7	1011	1927	29.63	7 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	991	4678		AFML CIRRUS STUDY BY AFGL. 1 E78-17 JN S APR 75 30 SECO
₽₩	۲.	.	; ;	300	• • • • • • •	::	: :	ċ	AL CIRRUS N S APR
E DISTRI Stre (40)	26 47	64	2 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9 6 6	, e	273	111		AF E78-17 J Bull-Ros
PARTICLE SIZE DISTRIBUTIONS SCAITER SIZE CLOU PROBE (10) 0408	5.18E+19 1.14E+08	• • •		***	, o c			3.396-05	FLIGHT
\$12£ (40)	A) P)	m N 17	12	325	25.5	28.	ä	140 460 0	

PRESS (#	ALT (KH) 9.65	1 -49.310	FPT -49.40	TAS (M/S)	۲ و.	FORM FO.00	MT (4 /H++ 3)	C. DOTALS
S-MA) PRECIP PROBE	.	• • • • • •			 	• • • • • • • • • • • • • • • • • • •		•
CNUMBER/HOS STZE CHUS	434	4944	1622	200 200 200 200 200 200 200 200 200 200	964 445 844 800	9 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	# 1949 1949 1949	
I PUTTONS CLOUD PROSE	66	• • •	•	::	; e e	éé	63	÷
SIZE (H1)	10	96	100	959	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	250	162	
PARTICLE SIZE DISTITUTIONS (NUMBER/M+3+MH) PRESS (MB) 912E SCATTER SIZE CLOUD STZE PRECIP 278.61 (MU) PROBE (MU) PROBE	3.495+09	•	.	.	• • •			24C 3.36E-8%
912E	N F	m r	* #	44	334	สถ	\$3.2	5 0 0 # 0 0
85	- +	ى ن	. ·			_		-
PRESS (HB) 279,09	414 (KH	7 -49.18	F. 6.4- (a.)	TAS (#/S) 135.01	: 2	FORT FG. 0	の・エンガン とな	TOTALS R. B
a. w								D. G. N. D.
a. w								o. a. a. a.
a. w								a. b. a. p. a. b. a. b.
a. w								a. b. a. y. totalis
								INC 3,72E-65 8. 8. 0. 4ED 0. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8. 8.

THE THE PERSONNEL OF THE PROPERTY OF THE PROPERTY OF THE PERSONNEL OF THE

PXESS (NB) 274:27	ALT CRM	3.0	7 - 69.650		34.64- Lda		IAS CH/S	136.20		00-706 10 7	FORM F1.40		HTCH/HOOS!	A. 40 251-01	7072LS 5.17E-47	787	AVERAGING Latures	PRESS (MB)	276.20	ALT CKH	3.65	259.64- 7		FPT -49.40	18/6/	136.48		2 2. 501-16	FORT F1.88		CONTAINE S	7040407
PRECIP	3005	•		-	•	•	0	•		•				•	5.178-07	7.6.7	AFGL 10 SECOND AV STARTE LB		PRECIP			P C		•	ه ه	•	•	•	> E	•		•
CELTRER/A+G-ZE) OFFICE PRECES	ĵ.	424		1318	1112	1927	2233	2534	5986	5 4 4 5 4 4 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	* * * * * * * * * * * * * * * * * * *	404	4478	4676			CTRRUS STUDY BY AFGL S APR 78 30 SECOND INTERVAL STARTE	NUMA ER / ME.	SIZE PRECIP		10 m	957	1716	1822			× 3 0 %	31 49	4 C C C C C C C C C C C C C C C C C C C	4165	0254	000
SIZE CLOUD	PROPE	•								e •					÷	-	BENE CIRRE) SMOILDEI	SIZE CLOUD		•					70 3. C + UC					3.	
IZE SISTR	e e e	56			100	128			189		•	271	291	316	10		A F WLL-40 SE								921		600	200	200	27.5	291	311
PASTICLE SIZE SPATTER	PKOP.	3.10E+89	7 - 7 DE + D			•	20436465	;	•		7 4 1 7			::	3.546	N	FLIGHT	APTICLE S	SCATTER	,	3.065+39	1.116+0	2.485+05		•		ě	•	•		: -	•
518	5 8	•	ני פי	. ~	. 6	=======================================	12	#	9	3:	7 -4 6	4 5	3 8	2	INC	0 37		a	32.25		CJ	~	۸ ۴	. 🗫	- C	<u>~</u> =	: =	=	9;	: ~	38	~
PKESS (#80 278.48	• 14	9.65			FP7 - 14.4C		TAS 18/8)	134,72	•	7 0.		77 L LY	KT (K / E)** (S)	å	TOTALS	•	AVERĄGING 16131,129	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	270.38	ALT (KH)	9,66	677 677	O# ***	FPT -49.40		(8/E) (8/E)		, B.	COBY CL. BA		(Seek/ K) LK	é
-MM) PRECTO	PROBE	ė	•	• •			•	;	÷	•	••	•	•	•	•	æ	STUDY BY AFGL 76 18 SECOND HTERVAL START!	(X	PRECIP						•				•			•
CECEDENTAN STREET	ŝ	724	90.		200	1917	2233	2936	2843	# 4 P	* N * P	2 4 6 4	2424	40.76			S STUDY 9Y R 76 THTERVAL	***	3710		F.0.4	90.	9119	1622	1927	2000	9 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	6415	202X		4370	02.53
SUTTONS (36084	ó	å		á	ě	· ~	•	ċ	;	•	• c	• •	:	÷	•	FML Crabus SM s APR SE	SMOTT	2010		å	ċ	ė		ċ.	• •	:	č	• •	;	e*.	ś
3U T		92	3:	*	100	128	87	169	189	600	9 E	200	4 60	;;;			APNL 578-17 34 5011-R055	21212	3178						8 2 4 ·	2 G	60	600	9 2 6	275	291	4 4 5
01810 S12E															60	~	FLICHT	1	*		500	200										
018701 S1 26		+ 0 %E + D 9	1 + 1 9E + 0B		: 4	•	•	;	•		•				3.295-05	0	žė, pro	131101	40A-16A	•	2.98	1.195+88		;	•	: .						÷

	FLIGHT	TYPE
	AVERAGING	18133100
BY AFGL	30 SECOND	L STARTE
CIRPUS STUDY	5 8PR 78 30 SECOND AVERAGIN	INTERVA
AFHL	E78-17 DN	TYPE # BULL-POSE
	FLIGHT	TYPE

AFML CIRRUS STUDY 9Y AFGL E78-17 CN 5 APR 78 30 SECOND AVERAGING BULL-ROSE INTFRYAL START! 18:34:80

PRESS (MB) 278,35	ALT (KH)	9,66	}	1 -49.75C		FPT -49,40		TAS (M/S)	138.01		2 0.		FORM FC. DO		NT (N/H*+3)	•	FOTALS	;
PRECIP			9		. 0		0.					0		•	.0		ć	•
UMBERZM#3-NW) SIZE PR	;	424	7.16	1011	1716	1622	1927	2233	25.33	2843	67 62	3454	3769	40.65	4370	45.54		
CLOUS (NI	2	6						•	.0		•			0.	٦.			<u>.</u>
DISTRIBU SI7E	<u>:</u>	56	24	67	87	404	128	248	169	189	503	230	250	271	291	311		
PARTICLE SIZE DISTRIBUTIONS SCATTER SIZE CLOUD PROBE (MIL) PROBE		2.76E+09	1.22E+08				;		.0		.0	•	;	9.		.0	36.7335	2
PA STZE	•	~	, ên	· tn	~	o,	11	12	**	16	£	13	21	56	52	ç.	,	4£0 D
PRESS (MB) 278.32	ALT (KH)	99•6		T -49.65C		FPT -49.40		TAS (H/S)	137.53		Z 1. J4E-05		FORM F1.00		(おままれ/ アンレル	2.09726-01	TOTALS	191
MM) PRECIP PROBF		9.06E-01	9.	•	.			0.		0.	•	٥.	•	÷		.0	7.745-07	191
NBEP/N*3-NH SYZE P (NU)	•	437	706	1011	1716	1622	1927	2233	2534	2843	31.49	3454	3766	4065	4370	4676		
ITIONS (NU GLOND PROBE		·	•	•	ę,	•	٠.	<i>u</i> .	·.	÷	•	9.	٥.	٠.	•		é	.
01579136 5126 (4U)		52	47	67	28	1.08	128	148	169	189	203	230	250	21	291	111		
PAPTICLE SIZE DISTPIRUTIONS (NU SCATTER STZE GLOND PROBE (4U) PROBE	!	2,95€+39	1.24E+88	•	د	.,	•	*,		;	·.			J.		۵.	3,256-05	2
PA9 SIZE (MU)		N	m	r.	^	6	#	12	*	97	2	19	컩	23	బ	22	Ç.	En o

PRESS (MB) 278.31	ALT (KH)			1 -49.760		FPT -49, 40		TAS (H/S)	136,38		2 2.06E-US		FORM F1.40		NT (N/H**3)	4.1478E-01	TOTALS(1.53E-06 191
PRECIP	!	1.79E+00		:	•	0.	•	•	•		•	•		•	.	•	1,53E-06 191
DISTRIBUTIONS (NUMBER/M#3-MM) SIZE PR (NU) PROBE (NU) PROBE		437	206	1011	1716	1622	1927	2233	2538	2843	64 15	3454	3761	4065	9427	9237	
C1, 00D C1, 00D CROSF	!	.	•	;		ċ											.
DISTRI ST?E (MU)		92	74	67	87	108	128	148	169	189	209	230	256	271	291	312	
PARTICLE STZE SCATTER PROBE	1	2.77Et 09	1.24E+08	•	<u>.</u>	•	9.	9.	ů.	٥.	;	;	Ġ		•	.0	3.09E-05
SI 2E		~	m	ιr	7	6	11	12	44	16	13	13	7	23	:2	22	INC HED D
PRESS (MB) 278.20	ALT CRES	99.66		1 -49,570		FPT -49.4C.	,	TAS (H/S)	138.27		2 0.		FORM, FL. 00		(の441/2)に	•	D. TOTALS
PRECIP PROPE 278.20	AL T	99.69	•	0. 1 -49,570	0.	0. FPT ~49.4C.		D. TAS (H/S)	0. 138.27	•	D. Z 0.	• ~	D. FORM, FU. 00	•	O. 27(2/1204)		D. D. D. D.
MBED/H*3-MX) SIZE PRECIP (MU) PROPE	ALT		706 0.	.0	٥.	0.	•		•	•	3149 D. Z O.	.;	• 0	•	6		D. D. D. D. D. D. D. D. D. D. D. D. D. D
MBED/H*3-MX) SIZE PRECIP (MU) PROPE	ALT	437 0.		1011 0.	1716 0.	1622 0.	1927 0.	2233 0.	2535 0.	2043 0.		3454 2.	3760 0.	4065 0.	K 0 0.25	4676 0. 0	n. B D. D. D. D. D.
MBED/H*3-MX) SIZE PRECIP (MU) PROPE	ALT	437 0.	706 0.	n. 1011 0.	u. 1316 D.	0. 1622 D.	0. 1927 0.	D. 2233 D.	0. 2539 0.	0. 2843 0.	•	G. 3454 D.	3760 0.	0. 4065 0.	D. 4370 D. X	0+ 4676 0.	n. B D. D. D. D. D.
IDUTIONS (NUMBER/M43-MM) SLOUD SLOUD PROSF (MU) PROPE	P.J.	437 0.	47 6. 705 9.	n. 1011 0.	u. 1316 D.	0. 1622 D.	0. 1927 0.	D. 2233 D.	0. 2539 0.	0. 2043 0.	•	G. 3454 D.	n. 3760 D.	0. 4065 0.	D. 4370 D. X	0+ 4676 0.	3.13E-05 n. D.

AND CONTROL OF CONTROL

A SWL CIRRUS STIDY BY AFGL FLIGHT E78-17 GN 5 APR 78 3D SECOND AVERAGING TYPE? BULL-ROSE INTERVAL STARTS 18133330

FLIGHT E78-17 CN 5 APP 78 30 SECOND AVERAGING TYPE: BULL-ROJE INTERVAL START: 18134:30

AFML CIKRUS STUDY BY AFGL FLIGHT E78-17 IN 5 APR 76 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 1813€120
78-17 JLL-ROS
FLIGHT E
AFML CIPRUS STUDY BY AFGL FLIGHT E78-17 ON 5 APR 78 38 SECOND AVERAGING TYPE: BULL-ROJE INTERVAL START: 18:35:80

PRESS (MB)	•	ALT (KH)	9.67	•	4		507 - 703	***	200	(S/E) (H)	70000	7 4 375 . 56	CD=3/C +7 7	EDDM FLA. 61	2017	100 000	(5) 10 / 6) 12	2.75116-01	TOTALS 1. 32E-06 191
-NM) PRECIP	PROBE		1.195+40							•	• •			• •			•	•	1.025-46
NUMBER/M#3 SIZE	CHC		437	204	1011	9.5.6	45.00	1024	200	2010	70.00	01	757	3769	4369	4770		9257	
I SUTIONS (,	. ;	0				· -					ئے :			5	:	•	÷
SI ZE	55	;	26	*	67	87	103	128	14.0	169	189	209	230	250	271	294		110	
PAPIICLE SIZE JISTRIGUTIONS (NUMBER/M+3-MM) SCATTER SIZE CLOUD SIZE PR	PROBE		2.536+09	1.38E+08	2.44E+05	2.445+05		ė		2.448+05	•	•		•••	•	•		•	3.05E-05
32 IS	5	•	N	m	ľ	~	თ	7	12	4	15	97	6;	21	23	52	20	ū	INC 4ED D
PRESS (M9) 276.21	•	£ 5	20.00		276.64-		FPT -49.4C		TAS (H/S)	138.07		6. 87E-06		IRM F1.00		ベヴォルエンエントス	101101	•	TOTALS 5.10E-07 191
	•	4			-		ū		7			7		5		ž	4.38		ηř
PRECIP	PROBE	A	5. 9/E-01	0.	٦.	•	•	•0	7	•	•	2 0	•	5	•	212	0.		5.10E-67 5. 191
UMBER/14*3-1 SIZE		ŧ	ň	706 0.	1011 0. T	•	•	•		2F38 A.	2843 0.	•	• 0	•	•		- 0	•	
UMBER/14*3-1 SIZE	5		*A 15 #			1316 0.	162? 0.	1927 D.	2233 0.		•	3149 0.	3454 0 •	3760 0.	4365 0.	4379 0.	1476 0.		
UMBER/14*3-1 SIZE	PRO9E (*U)			•	•	0. 1316 0.	N. 162? 0.	n. 1927 D.	0. 2233 0.	•	2843 0.	0. 3149 0.	n. 3454 0.	9. 3760 0.	0. 4965 0.	0. 4377 0.	15. 15.75. D.		5.10E-07 191
UMBER/14*3-1 SIZE	PRO9E (*U)		Sp 0. 437 5.	•	•	67 0. 1316 0.	108 A. 162? O.	126 n. 1927 D.	148 0. 2233 0.	169 0.	7. 2843 0.	200 0. 3149 0.	230 n _e 3454 0.	250 0. 3760 0.	271 0. 4365 0.	291 0. 4370 0.	244 3.		2.94E-05 0. 5.10E-07 2 191
IZE DISTRIGUTIONS (NUMBER/M*3-H SIZE SLOND SIZE	PROBE (4J) PRORE (#U)		Sp 0. 437 5.	47 3.	•	67 0. 1316 0.	108 A. 162? O.	J. 128 n. 1927 D.	0. 148 0. 2233 0.	0. 169 0.	189 4. 2843 0.	0° 3149 0°	0° 230 ° 3454 0°	0. 250 0. 3760 0.	d. 271 0. 4965 0.	0. 291 0. 4479 0.	5 15. 15. 15. 15. D.		0. 5.10E-07

	AVERAGING	16135130
31 ALGE	1-17 JU 5 APP 78 30 SECOND AVERAGING	NTERVAL STARTS
2027	S APP	Ā
JRIV	E78-17 78	9011-P0SE
	FLIGHT	TYPE

AFML CIDDUS STUDY BY AFGL
FLIGHT E78-17 ON 5 APP 78 30 SECOND AVERAGING
TYPE: BULL-405E INTERVAL START: 18136:30

PRESS (ME) 276.03		ALT CKH	67 0	10 00		3/4.84	4.	3		(8/4)	136,85		7. 94E-04		FORM F .15		NT PN / Nº B. Z.)	6.6117E+02		5.85£-05 61
-MM)	PROBE		1.765+110	2.855.488		•	•	•	•	•	•	•	•	•	•			. 0		1.495-05 301
3278 S276	5		4.37	7.5		44.64	1 1 1 1	1027	2000	9 6	22.42	200	31 49	オハナの	3760	405	4370	4676		
TAUTIONS (NUMBEF/M43-HM)	A GORE		3.10E+04	1.6354.44		9,135403	3-105-03	1.155403	2.746487			•	•	•	•	•	•	•		4.35E-05 53
SIZE	200		56	44	67	. 6	401	428	4	4		, c	, e	9 6	200	271	291	311		
PARTICLE SIZE SCATTER	25		2.54E+09	1.43E+08	7.32E+05	7.31E+05	1.46E+06	1.475+00	2.44E+05	7 345405	7.325405	44544	9.00		C + 4 4 C + 7 7		.,	•		4.39E-85
71 25 12 25	200	,	N	m	'n	^	6	11	12	4	15	=	9	;	3 8	23	52	2		TWC YED D
PRESS (#8) 278-02	1127	יייייייייייייייייייייייייייייייייייייי	3.6		T -49.68C		FPT -49.40		12S (N/S)	138,30		2 4.	:	ECOM FOLDS			(Sank/N) LN	•	TOTALS	o ė
PRECIP		•	•	÷	ė		•	•	•	•					•	•	•	•		
VUMBER/M*3-KK) SIZE PR			437	206	1011	1316	1622	1927	2233	2438	2843	57 52	4646	275	2 4	4004	0.234	4676		
DISTRIBUTIONS (NUMB SIZE CLOUD	202		•	å	•	;	•	•	•	ě				: 4	;		•	•		÷
SIZE		;	92	47	42	87	108	128	148	169	189	200	230		200	271	291	311		
E SIZE Ter	4		50+0	90+																2 2

ないないないないないないない

FLIGHT E78-17 CN 5 APR 76 30 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18:35:20 ARML CIPRUS STUDY RY AFGL FLIGHT E78-17 ON 5 APR 78 30 SECOND AVERAGING TYPE: RULL-ROSE INTEFVAL START: 18137100

PRESS (MB)	277.85	ALT (KH)	6.67		T -49.53C		FPT -49.40		TAS (H/S)	146.12		Z 4. 08c-62		FORM F . 55		NT (N / N++3)	6.56596+01	TOTALS 4,74E-04
ÚĦ.	PPECIP		4.53E+01	7.31E+01	3.935+00	1.03E+00	•	•		-	•	•		•		•	• 0	4.716-04
4BER/H*3-	STZE PPE		437	705	1011	1116	1422	1927	2233	2538	2843	6772	4694	3769	4065	4370	9257	
Ž			ę.		9		1.546+03	9	ċ	•	•	•	•	•	0.	9.	•	3.21E-06 58
DISTRI	SIZE	•	56	47	29	87	108	128	148	169	189	209	230	1250	271	291	111	
RTICLE SIZE	E SCATTER SIZE CLOUD PROBE (MIS) BRORE	!	2.51E+09	1.51E+08	1.69E+06	1.94E+06	•	4.845+15	2.41E+05	;	2.426+05	•	2.42E+05			•	•	3.5.6-05
ď	SIZE		~	m	v	~	6	.11	12	#	16	18	19	12	23	25	27	THC TED D
PRESS (NB)	277.16	ALT (KM)	29.6		1 -49.44C		FPT -49.40		TAS (M/S)	139,60		2 6.99E-03		FORM F . 16		NT (N /H++3)	6.9224E+02	TOTALS 1.89E-04 270
	PRECIP		1.57E+01	2.546+01	•	•	•	0.	•	•	•	•	•	•	•	•	••	1.346-04
PaH/dau	SIZE		437	706	1011	1316	1622	1927	2233	2538	2843	3149	3454	3760	4065	4779	4676	
Ž	CL000	!	5.17E+04	8.13E+03	•	1.365+04	1.08 -+04	•	9.00E+02	•	•	ċ	•	•	•	9.	•	5 5 9 5 ± 11 5
DISTRIB	S17E		92	47	67	87	108	128	148	169	169	209	23,	250	271	291	311	
TE SISE	SCATTER	1	•46E+09	. 5vE+08	.79E+06	• 46E+06	*94E+06	• 46E+06	.28E+05	.28E+05	.43E+05	•71E+05	.436+05	. 43E+05	**5E+05	•	•	5.u7E-05
RITC	ຮັ້	•	Ň	4	**	-1	*1	-1	^	٢	N	σ	N	ď	N	,	•	r.

PRES S (MB)	277.98		ALT (KH)	29.6		T -49.53C		FPT -49.40		TAS (H/S)	139,75		2 1.59E-02		FORM F .85		NT (N / H**3)	1.91 36E+01	TOTALS 2.45E-04
· wa	PPECIF	PROBE		2.56E+01	4.13£+01	1.97E+00			•	•	•		•		•		•	•	2,45E-94
UP GER / HT3.	STZE	(H)		437	705	1911	1716	1622	1927	2733	2538	2843	7149	3454	3760	5904	0227	9297	
UTIONS CH	21000	●ROBE		•	ċ		3.	•	•	ċ	.		•	-	ė	ó	•	•	<u>.</u> د ه
DISTRI	S1 72	5		56	47	29	87	108	128	148	169	189	209	230	250	271	291	311	
STICLE SIZE	SCATTER SIZE GLOUD SIZE PPE	PROBE		2.55E+09	1.58E+ D8	7.26E+05	4 . 8 SE+ 05	7.27E+N5	•	4.86E+05	7.28E+05	•	4.85E+05		•	•	;	2.43E+05	4.2uE-05
ď	\$176	(AC)		N	m	ıv	^	~	11	12	1,	16	10	19	7	23	52	22	INC 4EO O
FRESS (*B)	277,19		ALT CKH	6.67		1 -45.520		FPT -49,40		TAS (H/S)	139,92		2 3, 186-02		FORM F . 45		NT (N / M * 0 3)	7.25126+01	TOTALS 3.61E-04 315
	ECIP	ROBE	AL 7			1.97E+00 T -45.52C			•	0. TAS (H/S)	139,92	•0	9. 7 3, 186-02	•	II. FORM F . 45		O. NTCN/H*e35	0. 7.25126+01	707ALS 3.58E-04 3.61E-04 316 315
	ECIP	ROBE	AL 7	3.525+01	5.68E+01	1011 1.976+00	1316 1.03E+0f	1672 0.	•	2237 0. TAS (H/S)		•	•	•	-	•	•	•	3.58E-04 316
	ECIP	ROBE	AL 7	3.525+01	5.68E+01	1011 1.976+00	1.03E+0n	1672 0.	•	•		•	•	•	-	•	•	•	
	ECIP	ROBE	AL 7	9. 447 3.525+01	0. ~06 5.68E+01	0. 1011 1.97E+00	2.26E+03 1316 1.03E+0f	0. 1622 0.	0. 1927 0.	•	n. 2538 G.	0. 2843 0.	0. 3149 0.	3454 0.	0. 3760 ff.	0. 4065 0.	n. 4370 n.	0. 4576 0.	3.58E-04 316
		ROBE	AL 7	9. 447 3.525+01	47 0. 706 5.68€+01	67 0. 1011 1.978+00	87 2.26E+03 1316 1.03E+0f	108 0. 1522 0.	0. 1927 0.	148 7, 2237 0.	169 n. 2538 O.	0. 2843 0.	269 6. 3149 0.	3454 0.	0. 3760 ff.	O. 4065 G.	n. 4370 n.	0. 4576 0.	3.58E-04 316

ing and the state of the second in the second second second second second second second second second second se

3

AFWL CIPPUS STUDY BY AFGL FLIGHT E78-17 ON 5 APR 76 30 SECONO AVERAGING TYPE: BULL-ROSE INTFRVAL START: 18:37:33

FLIGHT E78-17 CN 5 APR 78 TO SECOND AVERAGING TYPE: BULL--00SE INTERVAL START: 18:38:30

PRESS (MB) 277.44	A: 7	99.68		362*04- 1	FDT -49.40		FAS (H/S)	136,28	7 1.305-04		FORM F .91		NT (N / N + W)	2413186-01	TOTALS 2. 50E-06 301	AVERAGING 1814013D		277.41	ALT (KH)	9, 68	T -50.410		FPT ~6.9.40	TAS (M/S)	137.64	Z 1.31E-64	•	16. 1 PAO	NT (N / H++3)	2.1403E-01	TOTALS 2. 51E-06 301
PRECIP PROFE	3308	2.946-01		• •	0	0	•	•	9 67	0	6	6		-	2,50E-06 301	AFGL O SECOND Start:	1	PP.C1 P		2.965-01			• •		•		:	• •	•	•	2.51E-06 301
DISTRIBUTIONS (NUMBER/M#7=MM) SIZE GLOUD SIZE PR		423	924	1716	1622	1927	2233	2538	3149	3454	3759	4065	4370	6701		CTODUS STUDY AY 5 APP 76 THEFFAL	***************************************	S125 (MC)		19 E	1011	1716	1927	2233	25.46	67 12	4424	10/01	4370	4576	
1000		•	ຕໍ່ຕໍ່		<u>.</u>	•	•	•		•	ů,	•	• •	•	٠ ئ	_	II SMULLURE (I	SIZE CLOUN	,	• •	.3	•		•	• 6		. .	•	:	•	•
SI ZE CHU)						128	10 d	169	203	230	250	271	4 0 4 4 0 4	447		E78-17 PULL-9	F OTSTRE	SIZE								203	230	274	291	115	
E SCATTER PROBE		2.87E+09	1.566+05	2.45E+05		•	•	• •		9.	÷,	•		•	3.36E-05	FLIGHT	STICLE ST	S CATTER PROBE	1	1.576+08		• .	•	•	•	: :	•			•	3,35E-05 2
SIZE (HU)	;	<i>c</i> u :	~ ս	. ~	σ;	#	7.	† †	60 1 -1	13	21	52	2 2	;	14C 4ED D		ď	S1 2E (HD)								12:	13	73	32	ö	INC 4ED D
276.08	ALT (KH)	99.66	T = 40.640		FPT -49.4C		TAS (H/S)	139.11	2 1. 55E-03		FORM F . 20		NT (N / N + 6 3)	10.11.000	TOTALS 3.68E-05 284	AVERAGING 18:39:30 ,	DOFA		ALT (KH)	/0 *	T -45.85C		- F	TAS (H/S)	139,05	Z 2.24E-03	ı	TOKA F . 91	NT (N /Hee 3)	3.9968E+UB	TOTALS 4, 22E-85 301
PPOBE		3.50E+00	5.65E+00	•	•		•	•		•	•	•	• •	•	2,975-35	AY AFGL 30 SECOND AVE L Starte 18:	į	PRECIP		A. 01E+00		•	•••	•	•		•	•		•	4.22E-05 301
(NUMBER/M*3-4K) SI7E PR		437	106	1316	1622	1927	2231	25.78	3149	3454	3760	4065	677			STHOY 7.6 INTERVA		SIZE PRE	1	7.16	1011	1,16	1027	2233	2538	3149	3424	20.03	4370	4676	
SIZE CLOUD	1	4.10E+04	6 4 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		•0		÷.			•		•	• •	•	7.055-06	CIPRUS 5 AP	X 9111011	\$12E CLOUD (4U) 2809F	,	• •		.	•••		•	;;	•	• 6		•	9•
		92	7.7	. Fo	108	128	0 t	169	662	23"	250	271	291	11,		E78-17 9ULL-40										502					
PARTICLE SIZE E SCATTER PROBE	3	2.71E+09	1.475+08	2.44E+05	59+355-2	•	2.43E+09	0.0000000000000000000000000000000000000	2.475+105	.;	•	•	•	•	3,57E-US	FLIGHT	1212 9 121101	E SCATTER	1	1.555.08	2.445+05	2.42E+05	2. t4E+U2	•	÷	• •	•			•	3.276-05
SIZE		~	P) U	n r	6	:	~1	1	2 0	13	7	23	25	Š	THC TEN 0		ō	31 ZE	. ,	N P	5 0	٠,	7	12	3,	2 2	61 6	7,5	30	21	THC TED 0

averaging 18142100	PRESS (MB) 277.55 ALT (KH) 9.68 T ~49.80C	FPT -49.4C TAS (M/S) 139.6B 2 1.40E-01 FORM F .63 NT(M/Me*31 4.1396E+01	707415 14 7.46-64 364 44-876 364 1814-2730	PRESS (MB) 277-62 ALT (KW) 1 -49.74C FPT -49.4C TAS (MKS) 246.82 Z 6.53E+00 FORM F .48 NT(N/M**3) 3,4236E+02	1.181-02
FOL STARTS 18	PAECTP PAECTP PACCE PACGE 9.13E+01 9.13E+01	6	7.48E-1 364 AFGL 0 SECONO STAPT:	7-H4) PRECIP 3-7-K-02 6-03-K-02 6-03-K-03 7-04 7-04 7-04 7-04 7-04 7-04 7-04 7-04	1,18E-U2 595
CTPRUS STUDY SY AFGL S APR 78 30 SECOND Interval Starts	(NUMBEP/WW3 D SIZE (MU) E (MU) 4,37 7,06 1041	6 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	CIODUS STHRY AY A APR 76 TWTERVAL	(NUMPER/H+1-14) SIZ-1-14) SIZ-1-14 A 4 4 7 4 4 7 4 4 4 4 4 4 4 4 4 4 4 4 4	6
AFWL CT3 E76-17 3N S BULL-PASE	£ 1		3. AFHL CIP E78-17 CN R SUL -ROSE	ALS B D C C C C C C C C C C C C C C C C C C	ė
FLIGHT E70 TYPE: BUI	ATTER ATTER AOBE 796+09 67E+08		7, 73E-05 2 2 ELIGHT F71 TYPE 1 DU	PAXITCE SIZE NO SIZE N	3.32E-05
	PA 2 21 2E (HU) 2 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	7,333,255,255,255,255,255,255,255,255,255	0 0 3 t	775 775 78 78 78 78 78 78 78 78 78 78 78 78 78 7	INC 4ED D
Averaging 18141100	PRESS (HB) 277-54 ALT (KH) 9-66	TS 1. ES 1.	TOTALS 10 1.046-06 191 191 AVERAGING 18:41:33	PRESS (HB) 277.68 ALT (KH) 1 -49.96C FPT -49.4C TAS (H/S) 2 8.23E-65 FÖRM F1.00 NT(N/H0.3) 1.65 64E-86	6, 11E-96 194
SCOND AVE	ECIP ROBE 21E+U0		35		_
STATS	PRECIP PROBE 1.21E+6		1.046-1 191 AFGL P.SECOND START!	2	6.11E-06 191
RUS STUDY BY AFGL APR 76 30 SECOND INTERVAL START!	SIZE PR SIZE PR (MU) P P (MU) P P P P P P P P P P P P P P P P P P P	6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1.046-1 191 291 291 AFGL 178 STARTE	(NUMBER/M 3 - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	6.11F+06
CIPRUS SAPR	SIZE PR SIZE PR (MU) P P (MU) P P P P P P P P P P P P P P P P P P P	00000000000000000000000000000000000000	1.046-1 191 CIRRUS STUDY 97 AFGL 5 APR 78 30 SECOND 5 APR 78	(NUMBER/M 3 - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7. 6.11E-06
AFML CIORUS STUDY BY AFC FLIGHT F78-17 ON 5 APR 76 3A ST TYPE: BULL-ROSE INTERVAL STAR	E DISTRIGUTIONS (NUMBER/M*3-MM) SIZE CLOUD SIZE PR (MU) RROSE (MU) P 26 0. 437 1.	20000000000000000000000000000000000000	1.046-1 191 CIRRUS STUDY 9V AFGL 5 APR 76 30 SECOND 5 APR 76 30 SECOND	CLOUD SIZE PRECI BROSF (WU) PROS CLOUD (WU) PROS CO C C C C C C C C C C C C C C C C C C	

FLIGHT ETB-17 3N 5 APR 78 38 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18:43:80

AFML CIRRUS STUDY BY AFGL FLIGHT E78-17 ON S APR 76 38 SECOND AVERAGING TYPE: BULL-ROSE INTERVAL START: 18144188

PRESS (MB)	274.20		Ş	9,6			260.05- 1		-49.40	!	4	È	133,61					FORM FO. CO		/ HAB 71				TOTALS	0	
F		3	1			(-		FPT		274	2			7 0,			ĝ		17.7	: :	;		•	•	
(F	PRECIP	20.00		•		•	•	•	•	•		:	•	•			•	•	•			•			- -	
NUMBE	SIZE		•	F24	706		1111	1319	1622	1927	22.33		Pr 12	2843	31 49	724		3/60	4005	6379	47.4					
SUTTONS (98088		•	•	-;	_	•	•	•	•			•	•	•	6	٠.	•	•	•	•	•		•	6	
DISTAT	1716		36	9 !	L	47	•		201	128	4		100	1.09	502	230	9 20		1/2	291	311					
PARTICLE SIZE DISTATEUTIONS	PROBE	!	T. OPEANG	701111	1.77E+05	•			•	•		, 0		•	•	•	3		•	•	÷			1.6uE-05	~	
PJ 217E	ŝ		•		•	£r.	7	. त	,	1	12	7	4	2 :	2	5	77		3'	S	27			C.F.C	- C 03	
PRESS (HB)		ALT (KM)	4.67		.1	7 -49.71C		TOT - 103	2	100000	19/K) 04/	140,34		7 3. 36.64.00	70 395400		FORM F . 48			(0) - E / E / E	20+3616402		TOTALS	7. 23E-03	244	
PRECIP	PROBE		2.74E+02	4.486402	30.00	6.72E+01	4.39E+01	2.025+01	136404	1000	70.505.46	•			•		•			•	•			7.235-43	\$ 0.25 0.25	
PA FR	S		437	74.6		1011	1316	1622	1927	2011	2 1	2535	2843	011		***	3766	4665	4470		0,0					
DISTPIBUTIONS (M. SIZE CLOUR	PROBE	,	å	÷		•	:	;	•			\$	÷			•	•	•			;		,	;	9	
OISTPI SIZE	ŝ	į	92	47	7	ò	. 87	108	128	148		101	189	209	240	2 6	200	271	291	-	•					
PARTICLE SIZE SCATTER	PROBE		C+012+07	1 • 6 3E + 0 8	SOTET.	1000	•	•	ċ	•			•	ċ	•		•	•	• •	9			7. 165.00	60-366.0	•	
517E	5	•	J	n	ď	٠.	- (.	7	75	44		9.	97	13			S	52	27	i		287	2 4 7	,	

AVERAGING 18143130
AFML CTPRUS STUDY GY AFGL E78-17 ON 5 APR 78 30 SECOND BULL-905E INTEPVAL START!
878-17 GN 87LL-405E
FLIGHT TYPE #

ATHL CIRRUS THOY BY AFGL TYPE: BULL-ROSE INTERVAL START: 1814430

PRESS (MB) 263.20	ALT CKN	36.6		7 -48.74C		FP7 -49.40		TAS (H/S)	135.49		Z. 1. 40E-03		FORM F . 91		NT CN / N + + U)	2.2921E+60	TOTALS	2.69E-05(
-MA) PRECIP	40 9E	3.16E+00	5.116+00	ć.	•		•	•	•	ċ	•	•	•	•	•	•		2.69E-05 301
(NUMBER/N#3-MH)		437	90.	101	1316	1622	1927	7.533	2536	2861	3149	74.4	3760	201	4379	7297		
SIZE CLOUP	ב ב ב	ċ	•	.	•	•	•	•	•	•	•	.			.	Ď		<i>6</i>
E OTSTRI SI ZE	2	56		29	0	9	0	2 0	100	50		200	200	100	16.2	311		
PARTICLE STZE O		2.95E+09	1.0000	•		•	•	•	•			• •	; e		•	•		3,535.05
31 15 31 25 31 25	. '	N' P	7 U	n #	. a	•	- 1	1 1	, ,		9	7.5	1 6) i	;	ö	5	1En 0
FRES S (MB) 277.00	ALT (KH)	K0 *K	150.400		FPT -49.40	•	TAS (N/S)	136.10		7 2. 79F P1		FORM F . 50		KT Ch / HOW A)	2.61 K7 E A B 1	10.016.40.5	TOTALS	255 255
PRECTP PROPE	9, 945 404	3.6.6+0.5	5.915+00	3.635+00	2.195+00	1.166+00		٠	•		•		å			•	A. 245-54	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
NUMBER/M+3-MM) STZE PR (MU)	7.8.7	106	1011	1116	1622	1927	2233	2438	2843	3149	3434	3769	4907	4370	4676)		
PUTIONS (CLOUD PROBE	ė	•	•	;	<u>.</u> :	ċ			ė	ċ	•	;	;	:	ċ		÷	-
91ST41 S1 ZE (MU)	26	4	67	91	108	126	148	169	189	503	230	250	271	291	311			
MATICLE SIZE DISTATUTIONS (NU SCATTER SIZE GLOUD PROUE (MU) MOSE	2.9bE+19	1.566+08	•	ċ	:	•	•	.;	•	•	•	;	;		.,		3.456-05	82

33335555555504a

AFML CIRRUS ETUDY 97 AFGL FLIGHT 678-17 1N 5 APR 78 38 SECOND AVERAGING TYPE: BULL-POSE INTERVAL START: 1814610
4FHL 578-17 7N 8ULL-POSE
FLIGHT
ML CTOPLS STUDY BY AFGL N S APR 78 30 SECOND AVERAGING E TWTERVAL START: 18:45:00
AFML FLIGHT 478-17 ON TYPE: 9ULL-40SE

ФRESS (НВ) 296.91	ALT (KH) 9.23	T ~46.49C	FPT -49.40	1AS (H/S) 147.36	2 0.	FOR4 FC. 00	NT (N / M + 1)	101ALS
-MM) PRECIP FRORE			• •	ن د د		••	•••	ر • •
DISTRIBUTIONS (NUMBER/H#3+HM) SIZE "LOUD STZE PRE (HI) GROBE (HU) FR	1437	4344	1622	2000	11.69	3761	6376	
Tauttons C FLOUD PROBE		; ;	o i	•••	• •	. .	• •	•6
OISTRI SIZE (HI)	4.2	67	103	1694	200	25° 24°	111	
PAPTICLE SIZE SCATTER PRUBE	2.76F+09 1.43E+08	•••		•••		1.3	•••	3.195-05
9, 312E (MU)	64 10	ω ~	63	244	3 5	4 %	\$2	TWC 4ED D
တ္တ	ALT (KB)	T -46.09C	FPT -49.40	TAS (H/S) 144.22	2 1, 336-05	FORM F1.03	2,6509E-01	TOTALS 9.83E-07 191
PROBE	1.16E+00	•••	• • •	• • •		• • •	•	9.84£-07 191
UMPER/H+3. SI75 (HU)	437	1316	11.1	2000 2000 2000 2000 2000 2000 2000 200	3111	5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	4876	
GLOUD GLOUD WROGE	é é e	•••		665	.		:	
DISTRI SI7F (MU)	526	200	9 9 9 2 4 4 4 4 4	190	2.00 2.00 2.00 2.00 2.00 3.00 3.00 3.00	225	111	
PARTICLE SIZE DISTRIBUTIONS SCATTER SIZE GLOU PROBE (MU) WROSH	2.85E+03 1.72E+18							3.436-05
S1 7E (MU)	() m u	۰ ۲	117	25	325	233	22	E 0

PRESS (M9) 361.21	ALT (KH) 9.13	T -45.79C	FPT -49.40	TAS (H/S)	7 0.	FORM FO.00	N7 (B / H * # 3)	TOTALS
-MM) DPECIP	9				• • •	• • •	•••	•
(NUPDEP/H=3=HM) SIZE DRECIP	484	1011	1622	2233	200 30 43 31 49	366	4676	
OISTRIBUTIONS (N. SIZE SLOUD (MU) SECRE	*				66.			÷
SIZE	, % ,	67	108	4 4	1000	253	10.80 0.40 4.44	
PARTICLE SIZE () F. SCATTER DEGREE	2.85E+09				700			7. 36E. ng
31 75 (NU)		, av v	6 3	12.3	999		:S.&	25
PRESS (MB) 291.40	ALT (KN) 9.35	7 -47.420	FPT -+9.45	TAS (H,S) 144,55	2 0.	FORM F.D. 00	NT (N /H** 3)	TOTALS 0.
PRECEP	••	•••	••	::	•••			•
(NUPRFP/M+3-34) SIZE PRE (MU) PF	4 4 4 7 0 6 7 0 6	1011	1627	2533	9448 444 444 444 444 444 444 444 444 444	3760 4065	4410 4676	
O W	ċċ	;;	::	* e	iėė	66		ė
SI 76 (40)	£ 28	. 67	156	0 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	5 5 5 5 7 50 4 N N	222	341	
PARTICLE SIZE DISTUIBUTIONS SCATTER SIZE GLOUI PROBE (MU) PROB!	2.88E+09	• • •		::		• • • • • • • • • • • • • • • • • • •	• •	3.39E-05
SIZE (HU)	01 PM E	r r a	737	:2:	335	វ សិ	32	O CAP

AFHL CIPRUS STUDY BY AFCL TYPE: BULL-ROSE INTERVAL STADIS 1801L-ROSE INTERVAL STADIS 18145130

FLIGHT E78-17 ON 5 APR 78 30 SECOND AVERAGING TYPE: AULL-405E INTERVAL STAPT: 18:46:30

Appendix E

的,我们是一个人,我们是一个

List of Abbreviations

1.	AFB	Air Force Base
2.	AFGL	Air Force Geophysics Laboratory
3.	AFWL	Air Force Weapons Laboratory
4.	Alt	Altitude (above mean sea level unless otherwise specified)
5.	ART	Airborne Radiation Technology
6.	ASSP	Axial Scattering Spectrometer Probe
7.	Bkn	Cloud cover 5/8 to 7/8 (broken)
8,	С	Cloud (or droplet) probe
9.	°C	Temperature in Degrees Celsius (C on computer listings)
10.	Ci	Cirrus
11.	Cs	Cirrostratus
12.	FPT	Frostpoint
13.	GOES	Geostationary Operational Environmental Satellite
14.	g m ⁻³	Grams per cubic meter
15.	Hdg	Aircraft heading
16.	las	Indicated air speed
17.	IWC	Ice water content
18.	LWC	Liquid water content
19.	mb	Millibar (MB on computer listings)
20.	μm	Micron (= 10 ⁻⁶ meter) [MU on computer listings]
21.	MSL	Mean sea level

OAT	Outside air temperature
1-D	One-dimensional Particle Measuring System
OVC	Cloud cover 8/8 (overcast)
P	Precipitation Probe
Set	Cloud cover 1/8 to 3/8 (scattered)
T	1 emperature
TAS	True air speed
2-D	Too-dimensional Particle Measuring System
Z	Universal (or Greenwich) mean time
Z	[Calculated radar reflectivity on computer listings]
	1-D OVC P Set T TAS 2-D Z



€.